AMBIENT AIR QUALITY
POST-OPERATIONAL SURVEY PART 1:
ENERGY-FROM-WASTE PLANT
VICTORIA HOSPITAL CORPORATION
LONDON, ONTARIO

JANUARY 1989

Environment Ontario

Jim Bradley
Minister

ISBN 0-7729-4893-3

AMBIENT AIR QUALITY

POST-OPERATIONAL SURVEY PART 1:

ENERGY-FROM-WASTE PLANT

VICTORIA HOSPITAL CORPORATION

LONDON, ONTARIO

R. Chapman
Air Resources Branch
Southwestern Region

January 1989

Copyright: Queen's Printer for Ontario, 1989

TABLE OF CONTENTS

		Page
Executive Summary		1
1.0	Introduction	2
2.0	The Mobile Air Monitoring Unit (MAMU)	2
3.0	Monitoring Locations	3
4.0	Results and Discussion	3
4.1	Common Contaminants	3
4.2	Volatile Organic Compounds (Gas Chromatograph)	3
5.0	Conclusions	4
6.0	References	5

Tables and Figures

Appendix A - Common Contaminants - Complete Data Set

Appendix B - Volatile Organic Compounds - Complete Data

Appendix C - Results Summaries for Previous Surveys

Appendix D - EFW Plant Process Description

Appendix E - EFW Plant Conditions During Survey

Executive Summary

A mobile air monitoring unit (MAMU) from the Air Resources Branch measured ambient air quality parameters near the Victoria Hospital Corporation Energy-From-Waste (EFW) plant in London during late June 1988. This was the first part of the post-operational survey to determine the ambient air concentrations of a large number of compounds which may be emitted from the EFW plant in various concentrations. The EFW plant was operated at 80% to 100% of capacity during the survey.

The effect of the EFW incinerator emissions on the ambient air quality during this survey was not significant or noticeable. That assessment is based on several factors. The one-hour average ambient air concentrations of the common contaminants such as CO and NO were very similar to the pre-operational survey results. The wind and pollution rose plots for CO, NO and THC did not point to the EFW stack as a source of CO, NO or THC emissions during the survey period. The ambient air concentrations of 132 organic compounds as determined by gas chromatography showed that none of the Ministry's air quality criteria was exceeded or approached, and generally agreed with the results of the two pre-operational surveys. There was no visible plume and no odours were perceived at any time by the monitoring crew.

1.0 Introduction

At the request of the Southwestern Region, the Monitoring and Instrumentation Development Unit of the Air Resources Branch performed an ambient air quality survey in London during the period June 21 to June 24, 1988. The air sampling was done near the site of the Victoria Hospital Corporation Energy-From-Waste (EFW) plant, and was the first part of the post-operational sampling as required by an agreement between the Victoria Hospital Corporation and the Ministry of the Environment. Parts I and II of the pre-operational survey were done in 1984 and 1986.

The purpose of the survey was to determine the ambient air concentrations of a large number of compounds which may be emitted from the EFW plant stack in various concentrations, namely: sulphur dioxide (SO2), carbon monoxide (CO), nitrogen dioxide (NO2), and a large number of hydrocarbons and chlorinated hydrocarbons. Most of the sampling periods coincided with a stack sampling and analysis program for particulate and hydrochloric acid (HCl) as performed by an environmental consulting company under contract. The present ambient air survey was done while the EFW plant was operating at 80-100 % of full capacity, and the results will be used to assess its impact, if any, on the ambient air quality. A general description of the EFW plant process is given in Appendix D, and a summary of the EFW plant operating conditions during the survey is given in Appendix E.

A mobile air monitoring unit (MAMU#1) from the Air Resources Branch was used for the ambient air survey.

2.0 The Mobile Air Monitoring Unit (MAMU)

The MAMU#1 is a self-contained mobile laboratory equipped with advanced analytical instrumentation dedicated to ambient air monitoring. The instrumentation package is listed in Table 1. A gas chromatograph (Hewlett-Packard 5880) coupled to a volatile organic compounds (VOC's) preconcentrator of the Ministry's design is used to measure up to 132 compounds in each one-hour sample. Ambient air is drawn into the preconcentrator at 100 ml/min where the VOC's are adsorbed onto a 10 mm O.D. glass cartridge packed with the adsorbents Carbotrap and Spherocarb.

The sampling periods were 60 minutes for the gas chromatograph samples so that the data could be directly compared to Ministry criteria for ambient air and to the results of the pre-operational surveys. Contaminants trapped by the adsorbents were thermally desorbed, prefocused, and injected onto the gas chromatograph column head. The samples were analyzed simultaneously on two 25-metre columns coated with SE-54 or OV-1 and detected with flame ionization detectors. Method detection limits were estimated to be in the range of 1 to 10 micrograms per cubic metre (ug/m3) of ambient air.

The current status of the organics sampling system is as follows:

- Compound identification is based on a gas chromatograph (GC) with a dual-column retention time index (RI) system. The RI of each compound peak detected by the GC is compared to a list (library) of known RIs for a large number of compounds. Retention time of a compound can shift enough daily to make identification impossible, so the retention times are verified each day (and updated if necessary) by analyzing a sample from a standard mixture of straight chain alkanes (C_3 - C_{12}). The probability of correctly identifying a compound based only on its RI is approximately 80%-90% for a dual-column system where the RI is within specified limits on both columns. If more than one library compound has an RI within the specified limits of RI on either column (interference), the correct identification and quantity of the unknown compound become less certain.

Concentrations less than 1 ug/m^3 are reported as N.D. (not detected), concentrations between 1 ug/m^3 and 5 ug/m^3 are reported as D (detected), and concentrations above 5 ug/m^3 are reported as actually determined. Results appended with a (i) denote interference presence and are less certain in identification and concentration than the other results.

3.0 Monitoring Locations

The selection of monitoring locations was based upon the locations used in the pre-operational surveys. As determined by the wind direction on an hourly basis, the MAMU was positioned downwind of the EFW stack in whatever previous location was suitable; otherwise, school yards, apartment building parking lots, and open areas on residential streets were the usual monitoring sites. Most of the locations were identical to sites used in the pre-operational surveys. The precise monitoring locations are listed in Table 2 and displayed on the map in Figure 3.1.

4.0 Results and Discussion

4.1 Common Contaminants

A summary of the results is contained in Table 3. Standards, Criteria and other notable parameters of the common contaminants measured by MAMU #1 are listed in Table 4. Sulphur dioxide (SO_2), carbon monoxide (CO), nitrogen dioxide (NO_2), nitric oxide (NO) and total hydrocarbons (THC) were found in relatively low concentrations during all monitoring periods. The complete data set for these compounds is in Appendix A. None of the applicable Ministry of Environment air quality criteria was exceeded or approached.

In comparison with the results for the pre-operational surveys, whose summary tables are shown in Appendix C, the maximum 1-hour average concentrations of the common contaminants (Table 3) was very similar. There was no indication of a change in concentrations due to the operation of the EFW incinerator. There was no visible plume and no odours were perceived at any time by the monitoring crew.

A detailed analysis of the CO, NO and THC data was performed with respect to wind direction for each of the monitoring periods. The results were plotted as wind roses and pollution roses that summarized the wind direction and pollutant concentration on a minute-by-minute basis. An example is shown in Figure 4.1. The EFW location is shown (relative to the MAMU location) for each rose; the pollution rose arrow lengths correspond to the CO concentration when the wind was blowing from each of those directions. There was no indication from any of the pollution roses that the EFW incinerator was a significant source of CO, NO or THC emissions during the survey period.

4.2 Volatile Organic Compounds (Gas Chromatograph)

A rough indication of the result for each sample is given by the total organic compounds (TOC) concentration in Table 3. A comparison of the TOC results with the results for the pre-operational surveys (Appendix C) revealed no significant difference. As a group the present results lie between the two pre-operational surveys. The complete set of gas chromatographic results for 132 organic compounds in all samples is contained in Appendix B. A review of the complete organic results revealed no significant concentrations at any time for any of the 132 compounds; that is, none of the Ministry's air quality criteria was exceeded or approached. Table 5 lists the Ministry's criteria for 1-hour samples where applicable.

5.0 Conclusions

The effect of the EFW incinerator emissions on the ambient air quality during this survey was not significant or noticeable.That

assessment is based on several factors. The one-hour average ambient air concentrations of the common contaminants such as CO and NO were very similar to the pre-operational survey results. The wind and pollution rose plots for CO, NO and THC did not point to the EFW stack as a source of CO, NO or THC emissions during the survey period. The ambient air concentrations of 132 organic compounds as determined by gas chromatography showed that none of the Ministry's air quality criteria was exceeded or approached, and generally agreed with the results of the two pre-operational surveys. There was no visible plume and no odours were perceived at any time by the monitoring crew.

6.0 References

1. Ambient Air Quality Pre-Operational Survey, Part I
Report Number ARB-082-85-AQM (1985)

2. Ambient Air Quality Pre-Operational Survey, Part II
Report Number ARB-126-87-AQM (1988)

Table 1

THE INSTRUMENTATION OF MOBILE AIR MONITORING UNIT #1

Instrument	Manufacturer	Analytical Technique	Full Scale Sensitivity
THC, CH4, TH-M analyzer	Ingenieur-Produktions-Gruppe Munchen (IPM) RS-t	Dual flame ionization	50 ppm THC (as CH4)
H2S, SO2, NOx sources	Hartmann & Braun Prufgasgenerator	N/A	N/A
TRS/SO2 analyzer	Monitor Labs 8850 c/w ML 8770	Fluorescence	0.5 ppm SO2 0.5 ppm TRS
NOx, NO2, NO analyzer	Monitor Labs 8840	Chemi-Luminescence	1.0 ppm NOx (as NO2)
CO analyzer	Thermo Electron P48	Gas Filter Correlation	100 ppm CO (digital)
O3 analyzer/ source	Dasibi 1003-AAS	UV Absorption	1.0 ppm O3 (digital)
Hewlett Packard Data Acquisition System - HP 85 and HP 3497A			
Gas Chromatograph	HP 5880 Dual Capillary Column c/w HP 86 Data Acquisition System	Flame Ionization Det.	as set per calibrations

Meteorological Instrumentation

Instrument	Manufacturer	Scale
** Wind speed	Lambrecht GmBH	km/hr
** Wind direction	Lambrecht GmBH	degrees
Temperature	Weather Measure (WM) T621	degrees Celsius
Humidity	MM-HM-11P	absolute & %
Barometric pressure	MM-BM70-B242	millibars
Solar Radiation	MM Star Pyranometer	milliwatts/cm2

** These instruments are located on top of a 10 metre retractable tower

TABLE # 2

Monitoring Locations and Periods

Date	Period #	Start Time	Duration (hrs)	Location	Map I.D. (fig. 3.1)
88/06/21	A212	13:06	4.03	Bristol Apts. parking lot	A
/22	A222	8:26	1.07	Arlington Cr./Renfro Cr.	B
/22	A223	10:13	0.68	Glencairn Public School	C
/22	A224	12:01	2.90	Parliment Cr. (#53)	D
/23	A232	9:03	1.17	Tourism Information parking lot	E
/23	A233	10:59	3.53	Ebury Cr. (by #97)	F
/23	A234	14:53	3.47	Arthur Stringer Public School	G
/23	A235	18:59	1.18	Victoria Hospital Parking Lot	H
/24	A242	9:55	1.42	Whetter Ave. (by #751)	J
/24	A243	12:35	1.13	200m S.W. of Stack	K
/24	A244	14:07	2.70	Herkimer St. (#247)	L

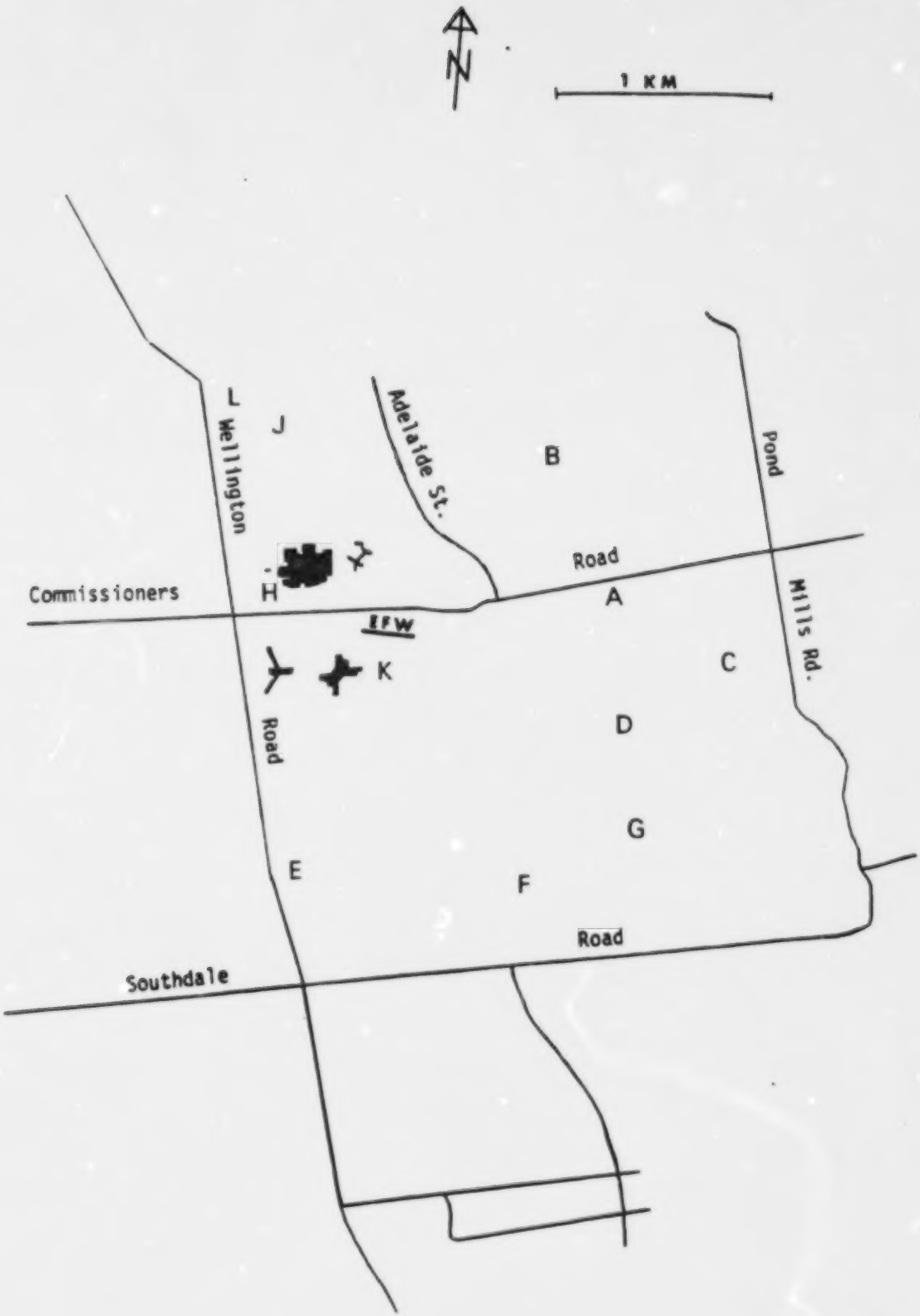


Figure 3.1 Monitoring Locations in Table 2

TABLE 3

London_88: Results Summary

Maximum 1-hr Average Concentration
(ppm, except as noted)

Monitoring Period No.	SO_2	CO	NO_2	NO	THC	TOC** (ug/m^3)	upwind/ downwind
A212*	ND	1.01	0.02	0.01	-	81, 57	DW
A222	ND	0.62	0.03	0.01	2.8	169	DW
A223	N.A.	N.A.	N.A.	N.A.	N.A.	111 (1/2 hr)	DW
A224	ND	1.13	0.01	0.02	2.7	47,82	DW
A232	ND	0.27	0.01	0.01	1.9	83	DW
A233	ND	0.81	0.01	0.03	2.5	117,175	DW#
A234	ND	0.54	0.01	0.01	2.2	70,32	DW
A235	ND	0.54	0.01	0.01	2.0	56	UW
A242	ND	1.02	0.02	0.03	2.4	110	DW#
A243	ND	0.80	0.01	0.01	2.9	112	UW#
A244	ND	1.33	0.02	0.03	3.7	190	DW#
Min. Det Level	0.01	0.1	0.01	0.01	0.1		

* A refers to MAMU #1
** This list contains all of the TOC results from the gas chromatograph
\- Not monitored
N.A. Not available (less than 1 hr.)
ND Not detected (measured concentration below Instruments' detection limit)
Some exhaust from MAMU

Table 4.

Characteristics of the Common Contaminants as Measured Continuously by MOBU #1

All concentrations are in terms of ppm (parts per million)

	Standards, Guidelines or Provisional Guidelines (0.5 hr.)		Criterion (1-hr.)	TWA	STEL			Alternate Names
1 SULPHUR DIOXIDE	0.300		0.25	2	5		SO2	SULFUR DIOXIDE
2 TOTAL REDUCED SULPHUR	0.027	*	0.027	10	15	**	TRS	
3 NITROGEN OXIDES	0.25	***	N/A	-	-		NOx	OXIDES of NITROGEN
4 NITROGEN DIOXIDE	N/A		0.20	5	5		NO2	
5 NITRIC OXIDE	N/A		N/A	25	35		NO	NITROGEN MONOXIDE
6 OZONE	0.1		0.08	0.1	0.3		O3	
7 CARBON MONOXIDE	5.0		30.0	50	400		CO	

* As equivalent H2S and applicable only for Kraft Pulp Mills
TRS may contain any of the following: Hydrogen Sulphide (H2S), Methyl Mercaptan (CH3SH), Dimethyl Sulphide (C2H6S) and Dimethyl Disulphide (C2H6S2).

** The TWA and STEL for TRS is expressed solely for Hydrogen Sulphide concentrations

*** Expressed as NO2

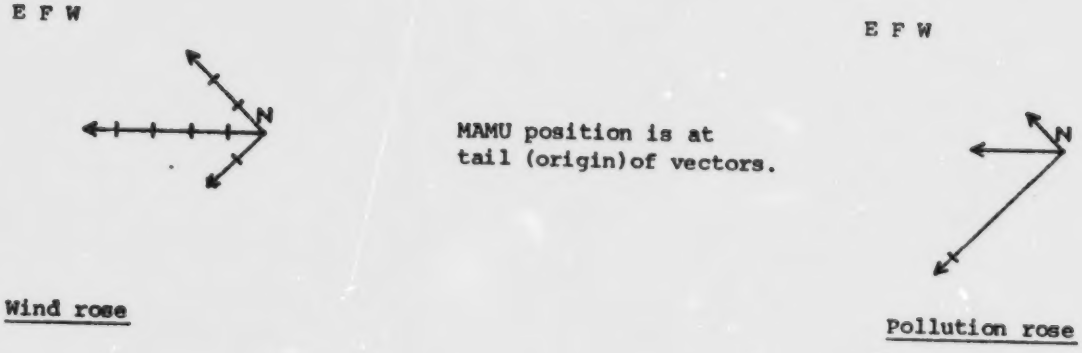
N/A Not Applicable

LONDON_88: A224

Start: 88/06/22 12:00 Scan: 60 sec. Ave: 1.0 min. Duration: 2.9 hrs.
Loc: PARLIAMENT CR. (#53) D.W.

WINDS Blowing From
1 Division = 10% of Time
Calm (< 3 km/hr) = .0%
Low (< 3 km/hr) = .0%
High (>100 km/hr) = .0%

CO Blowing From
1 Division = 1 ppm — A. MEAN



Wind rose

Pollution rose

Figure 4.1 Wind rose and CO pollution rose for period A224.

Table 5

The Volatile Organic Compounds Measured by the Gas Chromatographic System of MAMU #1

All concentrations are in ug/m^3 (micrograms per cubic metre)

		Standards, Guidelines or Provisional Guidelines	Criterion	TWA	STEL	Alternate Names
1	PROPENE					
2	PROPADIENE					ALLENE
3	PROPYNE					METHYL ACETYLENE
4	CYCLOPROPANE					
5	2-METHYLPROPANE					ISOBUTANE
6	CHLOROETHENE	560 (2)	280 (A)	5000	10000	VINYL CHLORIDE; CHLOROETHYLENE
7	1-BUTENE					
8	1,3-BUTADIENE					
9	BUTANE			1900000		*n-BUTANE*
10	1-BUTYNE					ETHYLACETYLENE
11	CHLOROETHANE			2600000	3250000	ETHYL CHLORIDE
12	3-METHYL-1-BUTENE					ISOAMYLENE
13	2-METHYLBUTANE					ISOPENTANE
14	2-METHYL-1-BUTENE					
15	PENTANE			1800000	2250000	*N-PENTANE*
16	2-METHYL-1,3-BUTADIENE					ISOPRENE
17	trans-2-PENTENE					
18	cis-2-PENTENE					
19	DICHLOROMETHANE	100000 (1)	100000 (A)	350000	1740000	METHYLENE CHLORIDE
20	2-METHYL-2-BUTENE					

Table 5 ctd.

The Volatile Organic Compounds Measured by the Gas Chromatographic System of MAMU #1

All concentrations are in ug/m^3 (micrograms per cubic metre)

	Standards, Guidelines or Provisional Guidelines	Criterion	TWA	STEL	Alternate Names
21 2,2-DIMETHYLBUTANE					
22 trans-1,2-DICHLOROETHENE					ISOHEXANE
23 3-METHYL-1-PENTENE					
24 4-METHYL-1-PENTENE					
25 CYCLOPENTANE					
26 2,3-DIMETHYLBUTANE					
27 2-METHYLPENTANE					
28 3-METHYLPENTANE					
29 1-HEXENE					
30 cis-1,2-DICHLOROETHENE					
31 2-CHLOROBUTANE			790000	1000000	cis-1,2-DICHLOROETHYLENE; SYM-DICHLOROETHYLENE
32 1-CHLORO-2-METHYLPROPANE					sec-BUTYL CHLORIDE
33 HEXANE	35000 (2)	12000 (A)	180000		"n-HEXANE"
34 CHLOROFORM	1500 (2)	500 (A)	50000	225000	TRICHLOROMETHANE
35 3-CHLORO-2-METHYLPROPENE					ISOBUTENYL CHLORIDE
36 METHYLCYCLOPENTANE					
37 2,4-DIMETHYLPENTANE					
38 1,2-DICHLOROETHENE			40000	60000	ETHYLENE CHLORIDE
39 2,2-DIMETHYLPENTANE					
40 1,1,1-TRICHLOROETHANE	350000 (1)	115000 (A)	19000000	2450000	METHYL CHLOROFORM

Table 5 ctd.

The Volatile Organic Compounds Measured by the Gas Chromatographic System of MOE #1

All concentrations are in ug/m^3 (micrograms per cubic metre)

		Standards, Guidelines or Provisional Guidelines	Criterion	TWA	STEL	Alternate Names
41	1-CHLOROBUTANE					n-BUTYL CHLORIDE
42	BENZENE	10000 (1)	3300 (A)	30000	75000	
43	TETRACHLOROMETHANE	1800 (2)	600 (A)	20000	125000	CARBON TETRACHLORIDE
44	3,3-DIMETHYLPENTANE					
45	CYCLOHEXANE	300000 (2)	100000 (A)	1050000	1300000	HEXAHYDROBENZENE
46	2,3-DIMETHYLPENTANE					
47	2-METHYLHEXANE					ISOHEPTANE
48	CYCLOHEXENE			1015000		
49	DIBROMOMETHANE					METHYLENE DIBROMIDE; METHYLENE BROMIDE
50	1,2-DICHLOROPROPANE					PROPYLENE CHLORIDE
51	3-METHYLHEXANE					
52	2,3-DICHLOROPROPENE			5000	50000	2,3-DICHLOROPROPYLENE
53	TRICHLOROETHENE	85000 (1)	28000 (A)	270000	1080000	TRICHLOROETHYLENE
54	2,2,4-TRIMETHYLPENTANE					ISOOCTANE
55	1-HEPTENE					
56	HEPTANE			1600000	2000000	*n-HEPTANE*
57	trans-2-HEPTENE					
58	METHYLCYCLOHEXANE			1600000	2000000	HEXAHYDROTOLUENE
59	2,2-DIMETHYLHEXANE					
60	ETHYLCYCLOPENTANE					

Table 5 ctd.

The Volatile Organic Compounds Measured by the Gas Chromatographic System of MOHU #1

All concentrations are in ug/m^3 (micrograms per cubic metre)

	Standards, Guidelines or Provisional Guidelines	Criterion	TWA	STEL	Alternate Names
61 4-METHYLCYCLOHEXENE					
62 2,5-DIMETHYLHEXANE					
63 1-CHLOROPENTANE					n-AMYL CHLORIDE; PENTYL CHLORIDE
64 1,1,2-TRICHLOROETHANE					VINYL TRICHLORIDE
65 2,3,4-TRIMETHYLPENTANE					
66 TOLUENE	2000 (1)	2000 (A)	375000	560000	"METHYLBENZENE"; PHENYLMETHANE
67 1,3-DICHLOROPROPANE			350000	510000	TRIMETHYLENE CHLORIDE
68 2-METHYLHEPTANE					
69 4-METHYLHEPTANE					
70 c-1,3-DIMETHYLCYCLOHEXANE					
71 3-METHYLHEPTANE					
72 1,2-DIBROMOETHANE					ETHYLENE DIBROMIDE; ETHYLENE BROMIDE
73 1,1-DIMETHYLCYCLOHEXANE					
74 1-OCTENE	150000 (3)	50000 (A)			
75 trans12DIMETHYLCYCLOHEXANE					"trans-1,2-DIMETHYLCYCLOHEXANE
76 trans-4-OCTENE					
77 TETRACHLOROETHENE	10000 (2)	4000 (A)	335000	1340000	TETRACHLOROETHYLENE; PERCHLOROETHYLENE
78 c-1,4-DIMETHYLCYCLOHEXANE					
79 OCTANE	45400 (3)	15300 (A)	1450000	1800000	"n-OCTANE"
80 trans-2-OCTENE					

Table 5 ctd.

The Volatile Organic Compounds Measured by the Gas Chromatographic System of MSMU #1

All concentrations are in ug/m^3 (micrograms per cubic metre)

		Standards, Guidelines or Provisional Guidelines	Criterion	TWA	STEL	Alternate Names
81	cis1ED[illegible]					
82	CHLOROBENZENE			350000		PHENYL CHLORIDE
83	ETHYLCYCLOHEXANE					
84	1-CHLOROHEXANE					n-HEXYL CHLORIDE
85	ETHYLBENZENE	4000 (1)	4000 (A)	435000	545000	
86	m,p-XYLENE	2300 (4)	2300 (A)	435000	655000	*1,3-DIMETHYLBENZENE*
87	4-METHYLOCTANE					
88	2-METHYLOCTANE					
89	3-METHYLOCTANE					
90	STYRENE	400 (1)	400 (A)	215000	425000	*ETHENYLBENZENE*; PHENYLETHYLENE; VINYLBENZENE
91	1,4-DICHLOROBUTANE					
92	o-XYLENE	2300 (4)	2300 (A)	435000	655000	*1,2-DIMETHYLBENZENE*
93	1,1,2,2-TETRACHLOR[illegible]					ACETYL[illegible]E TETRACHLORIDE
94	1,2,3-TRICHLOROPROPANE			300000	450000	TRICHLOROHYDRIN
95	1-NONENE					
96	NONANE			1050000	1300000	*n-NONANE*
97	ISOPROPYLBENZENE	100 (3)	100 (B)			*(1-METHYLETHYL)BENZENE*; CUMENE
98	2-CHLOROTOLUENE					*2-CHLORO-1-METHYLBENZENE*; o-TOLYL CHLORIDE; o-CHLOROTOLUENE
99	3-CHLOROTOLUENE					*3-CHLORO-1-METHYLBENZENE*; m-TOLYL CHLORIDE; m-CHLOROTOLUENE
100	4-CHLOROTOLUENE					*4-CHLORO-1-METHYLBENZENE; p-TOLYL CHLORIDE; p-CHLOROTOLUENE

Table 5 ctd.

The Volatile Organic Compounds Measured by the Gas Chromatographic System of MOMU #1

All concentrations are in ug/m^3 (micrograms per cubic metre)

	Standards, Guidelines or Provisional Guidelines	Criterion	TWA	STEL	Alternate Names
101 PROPYLBENZENE					n-PROPYLBENZENE
102 3-ETHYLTOLUENE					*1-ETHYL-3-METHYLBENZENE*; M-ETHYLTOLUENE
103 4-ETHYLTOLUENE					*1-ETHYL-4-METHYLBENZENE*; P-ETHYLTOLUENE
104 1,3,5-TRIMETHYLBENZENE			125000	170000	MESITYLENE
105 2-ETHYLTOLUENE					*1-ETHYL-2-METHYLBENZENE*; O-ETHYLTOLUENE
106 1,2,4-TRIMETHYLBENZENE	100 (2)	1000 (A)	125000	170000	PSEUDOCUMENE
107 tert.BUTYLBENZENE					*(1,1-DIMETHYLETHYL)BENZENE*
108 tert.BUTYLCYCLOHEXANE					
109 1,3-DICHLOROBENZENE					
110 1-DECENE					n-DECYLENE
111 1,2-DICHLOROPENTANE	180000 (3)	60000 (A)			
112 isoBUTYLBENZENE					
113 DECANE					*n-DECANE*
114 sec.BUTYLBENZENE					*(1-METHYLPROPYL)BENZENE*
115 1,2,3-TRIMETHYLBENZENE					MEMIMELLITENE
116 1ISOPROPYL4METHYLBENZENE			125000	175000	*4ETHYL(4-METHYLETHYL)BENZENE*; 3-ISOPROPYLTOLUENE; P-CYMENE
117 1,2-DICHLOROBENZENE					O-DICHLOROBENZENE
118 INDAN					*2,3-DIHYDRO-1H-INDENE*; 2,3-DIHYDROINDENE; HYDRINDENE
119 BUTYLCYCLOHEXANE					n-BUTYLCYCLOHEXANE; 1-CYCLOHEXYLBUTANE
120 1,3-DIETHYLBENZENE					m-DIETHYLBENZENE

Table 5 ctd.

The Volatile Organic Compounds Measured by the Gas Chromatographic System of MAMU #1

All concentrations are in ug/m^3 (micrograms per cubic metre)

		Standards, Guidelines or Provisional Guidelines	Criterion	TWA	STEL	Alternate Names
121	1,4-DIETHYLBENZENE					p-DIETHYLBENZENE
122	BUTYLBENZENE					n-BUTYLBENZENE
123	1,2-DIETHYLBENZENE					o-DIETHYLBENZENE
124	trans-DECAHYDRONAPHTHALENE					t-DECALIN; BICYCLO[4,4,0]DECANE
125	cis-DECAHYDRONAPHTHALENE					c-DECALIN; BICYCLO[4,4,0]DECANE
126	UNDECANE					*n-UNDECANE*; HENDECANE
127	1235-TETRAMETHYLBENZENE					ISODURENE
128	1234-TETRAMETHYLBENZENE					PREHNITENE
129	1,3-DIISOPROPYLBENZENE					*1,3-BIS(1-METHYLETHYL)BENZENE*
130	1234-TETRAHYDRONAPHTHALENE					TETRALIN
131	1,4-DIISOPROPYLBENZENE					*1,4-BIS(1-METHYLETHYL)BENZENE*; ISOPROPYLCUMENE
132	DODECANE					*n-DODECANE*

Table 5 ctd.

The Volatile Organic Compounds Measured by the Gas Chromatographic System of MAMU #1

All concentrations are in ug/m^3 (micrograms per cubic metre)

NOTES: (1) Standard
(2) Guideline
(3) Provisional Guideline
(4) Standard for sum of o-, m-, & p-Xylenes

(A) Ambient Air Quality Criterion based on a 24-hour average concentration
(B) Ambient Air Quality Criterion based on a 1-hour average concentration
(please note: if the maximum 1-hour average concentration of a contaminant is LESS than the Criterion concentration based on a 24-hour average, then that Criterion has NOT been exceeded.)

TWA - Time Weighted Average for a normal 8-hour workday and a 40-hour workweek, to which nearly all workers may be repeatedly exposed without adverse effect.

STEL - Short Term Exposure Limit - concentration to which workers can be exposed for a short period of time (15 minutes) without adverse effect.

* - Denotes name approved by the International Union of Pure and Applied Chemistry (IUPAC).

A P P E N D I X A

Common Contaminants

Complete Data Set

LONDON_88 : A212

Start: 88/06/21 13:05 Scan: 60 sec
Average: 60.00 min Report: 15.00 min
Loc: Bristol Apts. Parking Lot, Downwind

Time	CO	TNC	SO2	Non-CH4	Methane	NOx	NO2	NO	Ozone	SolarRad	Temp	Humidity	Barom	Wind-Spd	Wind-Dir
13:05-14:05	.8	-	nd	-	-	.02	nd	nd	-	.082	32.6	8.	978.3	6.	232.
13:20-14:20	.8	-	nd	-	-	.02	.01	nd	-	.081	32.9	8.	978.0	7.	234.
13:35-14:35	.8	-	nd	-	-	.02	.01	nd	-	.080	32.7	8.	977.6	10.	233.
13:50-14:50	.8	-	nd	-	-	.02	.01	nd	-	.079	32.7	8.	977.3	10.	239.
14:05-15:05	.7	-	nd	-	-	.02	.01	nd	.047	.078	32.3	8.	976.8	12.	234.
14:20-15:20	.7	-	nd	-	-	.02	.01	nd	.048	.076	32.4	14.	976.4	12.	236.
14:35-15:35	.8	-	nd	-	-	.02	.01	nd	.048	.074	32.6	23.	976.1	10.	243.
14:50-15:50	.9	-	nd	-	-	.02	.01	nd	.051	.072	32.9	32.	975.6	10.	241.
15:05-16:05	.9	-	nd	-	-	.03	.02	nd	.051	.070	33.2	40.	975.3	10.	249.
15:20-16:20	1.0	-	nd	-	-	.03	.02	nd	.053	.064	33.6	43.	974.8	9.	256.
15:35-16:35	.9	-	nd	-	-	.02	.01	nd	-	.060	33.5	39.	974.4	11.	237.
15:50-16:50	.7	-	nd	-	-	.02	.01	nd	-	.055	33.1	39.	973.9	12.	234.
16:05-17:05	.6	-	nd	-	-	.02	nd	nd	-	.049	32.5	39.	973.5	14.	226.

LONDON_88 : A212

Statistics	CO	THC	SO2	Non-CH4	Methane	NOx	NO2	NO	Ozone	SolarRad	Temp	Humidity	Barom	Wind-Spd	Wind-Dir
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	W/cm^2	d C	%-sat	mbar-sal	km/h	deg
Arith. Mean	.78	-	.005	-	-	.021	.012	.007	.050	.0696	32.6	24.8	976.8	-	-
Std. Dev.	.43	-	.000	-	-	.012	.008	.006	.007	.0142	1.8	16.9	1.8	-	-
Geo. Mean	.70	-	.005	-	-	.019	.010	.006	.048	-	-	-	-	-	-
Geo.Std.Dev	1.51	-	1.000	-	-	1.674	1.894	1.621	1.263	-	-	-	-	-	-
Min Reading	.27	-	.005	-	-	.005	.005	.005	.005	.0190	29.8	7.2	973.0	.0	11.2
Max Reading	3.60	-	.005	-	-	.082	.033	.053	.063	.0836	35.0	54.2	978.7	26.0	356.5
Min Average	.60	-	.005	-	-	.016	.008	.006	.047	.0484	32.2	7.7	973.5	5.4	225.1
Max Average	1.01	-	.005	-	-	.030	.010	.010	.054	.0822	33.7	42.7	976.3	14.4	252.0
# Valid Rdgs	242.	0.	242.	0.	0.	242.	242.	242.	125.	242.	242.	242.	242.	242.	242.
Min.Det.Lev	.10	.100	.010	.100	.100	.010	.010	.010	.004	-	-	-	950.0	-	-
1 hr Crit.	30.00	-	.250	-	-	-	.200	-	.080	-	-	-	-	-	-

- \- Invalid Data / Not Calculated
- nd Average is less than Min. Detectable Level
- m One or more readings Missing
- * Average is above Provincial Std/Criteria

Percent Valid Data Required for Valid Average: 90.0 %
Averaging Started at Nearest: .0 min
Averages updated every SCAN time

LONDON_88 : A213

Start: 88/06/21 10:41 Scan: 300 sec
Average: 60.00 min Report: 15.00 min
Loc: OVERNIGHT ON SHORELINE

Time	CO	THC	SO2	Non-CH4	Methane	NOx	NO2	NO	Ozone	SolarRad	Temp	Humidity	Barom	Wind-Spd	Wind-Dir
18:41-19:41	.8	—	nd	—	1.35	.02	.01	nd	.022	.000	27.0	67.	970.1	13.	199.
18:56-19:56	.7	—	nd	—	1.34	.02	.01	nd	.022	.007	26.7	67.	970.0	13.	198.
19:11-20:11	.6	—	nd	—	1.36	.02	.01	nd	.024	.006	26.4	67.	970.0	13.	198.
19:26-20:26	.6	—	nd	—	1.45	.02	.01	nd	.025	.005	26.0	68.	970.0	12.	198.
19:41-20:41	.6	—	nd	—	1.42	.02	.02	nd	.023	.004	25.7	69.	969.7	10.	195.
19:56-20:56	.6	—	nd	—	1.38	.02	.02	nd	.022	.002	25.4	71.	969.5	8.	195.
20:11-21:11	.6	—	nd	—	1.25	.03	.02	nd	.019	.001	25.1	73.	969.3	7.	191.
20:26-21:26	.6	—	nd	—	1.10	.03	.02	nd	.018	.000	24.7	75.	969.0	6.	183.
20:41-21:41	.6	—	nd	—	1.07	.03	.02	nd	.018	.000	24.3	77.	969.0	5.	183.
20:56-21:56	.5	—	nd	—	1.06	.03	.02	nd	.018	.000	24.0	78.	969.0	4.	179.
21:11-22:11	.5	—	nd	—	1.05	.03	.02	nd	.019	.000	23.8	80.	969.0	3.	171.
21:26-22:26	.6	—	nd	—	1.04	.03	.02	nd	.018	.000	23.6	82.	969.0	2.	166.
21:41-22:41	.5	—	nd	—	1.03	.03	.02	nd	.018	.000	23.4	83.	969.0	2.	164.
21:56-22:56	.5	—	nd	—	1.02	.03	.02	nd	.018	.000	23.2	85.	969.0	2.	167.
22:11-23:11	.5	—	nd	—	1.02	.03	.03	nd	.017	.000	23.0	87.	969.3	2.	176.
22:26-23:26	.5	—	nd	—	1.01	.04	.03	nd	.016	.000	22.9	88.	969.4	2.	184.
22:41-23:41	.6	—	nd	—	1.01	.04	.03	nd	.014	.000	22.8	90.	969.6	2.	187.
22:56-23:56	.6	—	nd	—	1.01	.04	.03	nd	.015	.000	22.7	92.	969.8	3.	191.
23:11-00:11	.6	—	nd	—	1.10	.05	.04	nd	.014	.000	22.6	94.	969.8	3.	195.
23:26-00:26	.5	—	nd	—	1.56	.04	.04	nd	.017	.000	22.4	96.	969.8	4.	196.
23:41-00:41	.5	—	nd	—	1.03	.04	.03	nd	.020	.000	22.3	98.	969.6	5.	195.
23:56-00:56	.5	—	nd	—	1.04	.03	.03	nd	.023	.000	22.2	99.	969.4	5.	194.
88/06/22															
00:11-01:11	.4	—	nd	—	1.74	.02	.02	nd	.026	.000	22.1	100.	969.1	4.	190.
00:26-01:26	.4	—	nd	—	1.28	.02	.02	nd	.026	.000	22.0	100.	969.1	3.	188.
00:41-01:41	.4	—	nd	—	1.01	.03	.02	nd	.024	.000	22.0	100.	969.0	2.	187.
00:56-01:56	.5	—	nd	—	1.00	.03	.03	nd	.022	.000	22.0	100.	969.0	1.	188.
01:11-02:11	.5	—	nd	—	1.00	.04	.03	nd	.021	.000	22.0	100.	969.0	2.	194.

01:26-02:26	.5	—	nd	—	1.00	.04	.04	nd	.021	.000	22.0	100.	969.0	2.	196.
01:41-02:41	.6	—	nd	—	1.28	.04	.04	nd	.022	.000	22.1	100.	969.0	3.	198.
01:56-02:56	.6	—	nd	—	1.30	.04	.03	nd	.025	.000	22.4	100.	969.0	4.	199.
02:11-03:11	.6	—	nd	—	1.30	.03	.03	nd	.028	.000	22.7	100.	969.0	4.	200.
02:26-03:26	.6	—	nd	—	1.22	.03	.03	nd	.031	.000	23.0	100.	969.0	5.	202.
02:41-03:41	.6	—	nd	—	1.01	.03	.02	nd	.033	.000	23.2	100.	969.0	5.	203.
02:56-03:56	.6	—	nd	—	1.00	.02	.02	nd	.033	.000	23.1	100.	969.0	5.	205.

LONDON_88 : A213

Time	CO	THC	SO2	Non-CH4	Methane	NOx	NO2	NO	Ozone	SolarRad	Temp	Humidity	Barom	Wind-Spd	Wind-Dir
03:11-04:11	.6	—	nd	—	1.01	.03	.02	nd	.032	.000	23.0	100.	969.0	3.	208.
03:26-04:26	.6	—	nd	—	1.01	.03	.02	nd	.030	.000	22.9	100.	969.0	2.	212.
03:41-04:41	.6	—	nd	—	1.03	.03	.02	nd	.030	.000	22.9	100.	969.0	2.	217.
03:56-04:56	.6	—	nd	—	1.04	.03	.03	nd	.030	.000	23.0	-	969.0	2.	223.
04:11-05:11	.6	—	nd	—	1.05	.04	.03	nd	.029	.000	23.0	-	969.0	2.	224.
04:26-05:26	.7	—	nd	—	1.05	.04	.03	nd	.029	.000	23.2	-	969.0	2.	224.
04:41-05:41	.7	—	nd	—	1.04	.04	.03	nd	.029	.000	23.4	-	969.0	2.	225.
04:56-05:56	.7	—	nd	—	1.02	.03	.03	nd	.030	.000	23.6	-	969.0	3.	231.
05:11-06:11	.7	—	nd	—	1.02	.03	.02	nd	.031	.000	23.9	-	969.0	4.	235.
05:26-06:26	.8	—	nd	—	1.03	.03	.02	nd	.031	.000	24.2	-	969.0	4.	235.
05:41-06:41	.8	—	nd	—	1.03	.04	.03	nd	.028	.000	24.5	-	969.0	5.	232.
05:56-06:56	.9	—	nd	—	1.04	.04	.03	.01	.027	.001	24.7	-	969.0	6.	225.
06:11-07:11	1.0	—	nd	—	1.06	.05	.04	.01	.024	.001	25.0	-	969.0	7.	217.

LONDON_88 : A213

Statistics	CO	THC	SO2	Non-CH4	Methane	NOx	NO2	NO	Ozone	SolarRad	Temp	Humidity	Barom	Wind-Spd	Wind-Dir
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	W/cm^2	d C	%-rel	mbar-sal	km/h	deg
Arith. Mean	.62	—	.005	—	1.172	.032	.026	.006	.024	.0011	23.7	88.4	969.3	-	-
Std. Dev.	.16	—	.000	—	.350	.014	.011	.004	.007	.0025	1.5	12.9	.4	-	-
Geo. Mean	.60	—	.005	—	1.138	.030	.023	.006	.023	-	-	-	-	-	-
Geo.Std.Dev	1.25	—	1.000	—	1.245	1.494	1.657	1.425	1.353	-	-	-	-	-	-
Min Reading	.40	—	.005	—	.902	.013	.005	.005	.007	.0000	21.9	66.2	969.0	.0	110.6
Max Reading	1.24	—	.005	—	3.194	.084	.057	.026	.038	.0123	27.7	100.0	970.6	16.4	248.5
Min Average	.44	—	.005	—	.995	.017	.011	.005	.014	.0000	22.0	66.6	969.0	1.3	163.7
Max Average	.90	—	.005	—	1.040	.057	.040	.015	.034	.0080	27.0	100.0	970.1	13.4	235.4
# Valid Rdgs	151.	0	151.	0	151.	151.	151.	151.	151.	151.	151.	120.	151.	151.	151.
Min.Det.Lev	.10	.100	.010	.100	.100	.010	.010	.010	.004	-	-	-	950.0	-	-
1 hr Crit.	30.00	—	.250	—	-	-	.200	-	.080	-	-	-	-	-	-

- - Invalid Data / Not Calculated
- nd Average is less than Min. Detectable Level
- n One or more readings Missing
- * Average is above Provincial Std/Criteria

Percent Valid Data Required for Valid Average: 90.0 %
Averaging Started at Nearest: .0 min
Averages updated every SCAN time

LONDON_88 : A222

Start: 88/06/22 08:25 Scan: 60 sec
Average: 60.00 min Report: 15.00 min
Loc: ARLINGTON CR./RENFRO CR. D.W.

Time	CO	THC	SO2	Non-CH4	Methane	NOx	NO2	NO	Ozone	SolarRad	Temp	Humidity	Baron	Wind-Spd	Wind-Dir
08:25-09:25	.6	2.03	nd	1.90	1.32	.03	.03	nd	.023	.016	20.2	79.	971.2	22.	249.

LONDON_88 : A222

Statistics	CO	THC	SO2	Non-CH4	Methane	NOx	NO2	NO	Ozone	SolarRad	Temp	Humidity	Baron	Wind-Spd	Wind-Dir
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	W/cm^2	d C	%-rel	mbar-sal	km/h	deg
Arith. Mean	.62	2.037	.008	1.908	1.310	.034	.027	.005	.024	.0166	20.3	77.2	971.2	-	-
Std. Dev.	.20	.044	.003	.048	.005	.009	.007	.000	.008	.0029	.5	20.4	.2	-	-
Geo. Mean	.59	2.037	.007	1.908	1.310	.033	.026	.005	.022	-	-	-	-	-	-
Geo.Std.Dev	1.36	1.016	1.330	1.030	1.004	1.276	1.300	1.000	1.404	-	-	-	-	-	-
Min Reading	.39	2.730	.005	1.400	1.309	.023	.016	.005	.010	.0100	27.4	53.2	971.1	11.9	227.0
Max Reading	.97	2.090	.013	1.973	1.320	.051	.042	.005	.035	.0220	29.2	100.0	971.7	34.3	287.0
Min Average	.60	2.035	.008	1.903	1.310	.034	.027	.005	.023	.0163	20.2	76.0	971.2	21.0	240.2
Max Average	.62	2.043	.008	1.912	1.319	.035	.027	.005	.024	.0170	20.3	78.0	971.2	22.1	252.1
# Valid Hrs	64.	64.	64.	64.	64.	64.	64.	64.	64.	64.	64.	63.	64.	64.	64.
Min.Det.Lev	.10	.100	.010	.100	.100	.010	.010	.010	.004	-	-	-	950.0	-	-
1 hr Crit.	30.00	-	.250	-	-	-	.200	-	.080	-	-	-	-	-	-

- Invalid Data / Not Calculated
nd Average is less than Min. Detectable Level
m One or more readings Missing
* Average is above Provincial Std/Criteria

LONDON_88 : A223

Start: 88/06/22 10:12 Scan: 60 sec
Average: 60.00 min Report: 15.00 min
Loc: Glencairn Public School

Time	CO	THC	SO2	Non-CH4	Methane	NOx	NO2	NO	Ozone	SolarRad	Temp	Humidity	Baron	Wind-Spd	Wind-Dir
LONDON_88 : A223	(Insufficient data for 1-hr ave.)														

Statistics	CO	THC	SO2	Non-CH4	Methane	NOx	NO2	NO	Ozone	SolarRad	Temp	Humidity	Baron	Wind-Spd	Wind-Dir
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	W/cm^2	d C	%-rel	mbar-msl	km/h	deg
Arith. Mean	.69	2.436	.009	1.212	1.185	.016	.009	.005	.031	.0547	29.9	51.3	904.1	-	-
Std. Dev.	.10	.039	.001	.034	.007	.002	.003	.000	.003	.0003	.2	.6	.0	-	-
Geo. Mean	.68	2.436	.009	1.212	1.185	.016	.008	.005	.031	-	-	-	-	-	-
Geo.Std.Dev	1.18	1.016	1.287	1.029	1.006	1.164	1.930	1.000	1.101	-	-	-	-	-	-
Min Reading	.43	2.357	.005	1.119	1.167	.012	.005	.005	.025	.0344	29.4	50.1	904.1	23.7	276.3
Max Reading	.82	2.484	.010	1.258	1.198	.020	.015	.005	.036	.0670	30.3	52.3	904.3	46.6	317.8
# Valid Rdgs	41.	41.	41.	41.	41.	41.	41.	41.	41.	41.	41.	41.	41.	41.	41.
Min.Det.Lev	.10	.100	.010	.100	.100	.010	.010	.010	.004	-	-	-	950.0	-	-
1 hr Crit.	30.00	-	.250	-	-	-	.200	-	.080	-	-	-	-	-	-

- - Invalid Data / Not Calculated
- nd - Average is less than Min. Detectable Level
- m - One or more readings Missing
- * - Average is above Provincial Std/Criteria

Percent Valid Data Required for Valid Average: 90.0 %
Averaging Started at Nearest: .0 min
Averages updated every SCAN time

LONDON_88 : A224

Start: 88/06/22 12:00 Scan: 60 sec
Average: 60.00 min Report: 15.00 min
Loc: PARLIAMENT CR.(#53) D.W.

Time	CO	THC	SO2	Non-CH4	Methane	NOx	NO2	NO	Ozone	SolarRad	Temp	Humidity	Barom	Wind-Spd	Wind-Dir
12:00-13:00	.3	2.41	nd	.87	1.50	.01	nd	nd	.036	.030	29.1	49.	903.2	34.	297.
12:15-13:15	.3	2.63	nd	.94	1.66	.01	nd	nd	.037	.037	28.8	50.	902.6	28.	292.
12:30-13:30	.4	2.69	nd	.91	1.70	nd	nd	nd	.038	.033	28.7	49.	901.9	22.	289.
12:45-13:45	.4	2.60	nd	.89	1.71	nd	nd	nd	.038	.028	28.6	49.	901.3	18.	285.
13:00-14:00	.5	2.33	nd	.72	1.58	nd	nd	nd	.039	.029	28.7	48.	900.8	15.	280.
13:15-14:15	.6	1.98	nd	.80	1.37	.01	nd	nd	.040	.034	29.2	47.	900.4	14.	270.
13:30-14:30	.7	1.81	nd	.82	1.26	.02	nd	.01	.042	.038	29.5	47.	900.1	14.	262.
13:45-14:45	1.0	1.71	nd	.81	1.16	.03	nd	.02	.043	.044	30.2	46.	979.8	12.	250.

LONDON_88 : A224

Statistics	CO	THC	SO2	Non-CH4	Methane	NOx	NO2	NO	Ozone	SolarRad	Temp	Humidity	Barom	Wind-Spd	Wind-Dir
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	W/cm^2	d C	%-rel	mbar-sal	km/h	deg
Arith. Mean	.64	2.166	.005	.718	1.469	.017	.008	.009	.042	.0376	29.5	47.6	981.2	-	-
Std. Dev.	.62	.526	.000	.227	.320	.015	.005	.010	.031	.0109	1.0	1.8	1.6	-	-
Geo. Mean	.50	2.107	.005	.682	1.377	.013	.007	.007	.040	-	-	-	-	-	-
Geo.Std.Dev	1.85	1.261	1.000	1.365	1.234	2.054	1.618	1.872	1.231	-	-	-	-	-	-
Min Reading	.19	1.565	.005	.363	1.096	.005	.005	.005	.029	.0198	28.2	43.7	979.0	4.0	212.6
Max Reading	3.56	3.706	.005	1.295	2.383	.092	.031	.065	.444	.0757	31.9	50.8	983.9	60.0	320.5
Min Average	.32	1.683	.005	.511	1.133	.007	.005	.005	.036	.0272	28.6	45.5	979.6	12.2	243.3
Max Average	1.13	2.700	.005	.952	1.713	.029	.010	.017	.050	.0457	30.6	49.5	983.2	33.9	297.3
# Valid Rdgs	174.	174.	174.	174.	174.	174.	174.	174.	174.	174.	174.	174.	174.	174.	174.
Min.Det.Lev	.10	.100	.010	.100	.100	.010	.010	.010	.004	-	-	-	950.0	-	-
1 hr Crit.	30.00	-	.250	-	-	-	.200	-	.080	-	-	-	-	-	-

- Invalid Data / Not Calculated
nd Average is less than Min. Detectable Level
m One or more readings Missing
* Average is above Provincial Std/Criteria

Percent Valid Data Required for Valid Average: 90.0 %
Averaging Started at Nearest: .0 min
Averages updated every SCAN time

LONDON_88 : A225

Start: 88/06/22 16:53 Scan: 60 sec
Average: 60.00 min Report: 15.00 min
Loc: THOMPSON RD 1.3 KM N OF EFW

Time	CO	THC	SO2	Non-CH4	Methane	NOx	NO2	NO	Ozone	SolarRad	Temp	Humidity	Barom	Wind-Spd	Wind-Dir
16:53-17:53	1.8	2.70	nd	1.37	1.28	.04	.02	.01	.072	.020	33.7	43.	978.0	11.	267.

LONDON_88 : A225

Statistics	CO	THC	SO2	Non-CH4	Methane	NOx	NO2	NO	Ozone	SolarRad	Temp	Humidity	Barom	Wind-Spd	Wind-Dir
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	W/cm^2	d C	%-rel	mbar-sal	km/h	deg
Arith. Mean	1.87	2.703	.005	1.379	1.281	.030	.025	.011	.072	.0197	33.7	43.4	978.0	-	-
Std. Dev.	.79	.216	.001	.212	.023	.017	.010	.008	.052	.0118	.5	.5	.4	-	-
Geo. Mean	1.73	2.695	.005	1.364	1.281	.035	.023	.009	.061	-	-	-	-	-	-
Geo.Std.Dev	1.45	1.081	1.147	1.159	1.018	1.464	1.359	1.854	1.866	-	-	-	-	-	-
Min Reading	1.04	2.420	.005	1.081	1.243	.016	.005	.005	.002	.0063	32.9	42.2	977.2	1.2	195.2
Max Reading	4.60	3.275	.011	1.979	1.345	.105	.056	.047	.297	.0513	34.9	44.4	978.7	26.3	355.0
Min Average	1.82	2.696	.005	1.372	1.288	.036	.024	.010	.072	.0187	33.7	43.4	978.0	10.7	267.1
Max Average	1.85	2.707	.005	1.383	1.281	.038	.025	.011	.072	.0202	33.7	43.5	978.0	11.1	267.8
# Valid Rdgs	62.	62.	62.	62.	62.	62.	62.	62.	62.	62.	62.	62.	62.	62.	62.
Min.Det.Lev	.10	.100	.010	.100	.100	.010	.010	.010	.004	-	-	-	950.0	-	-
1 hr Crit.	30.00	-	.250	-	-	-	.200	-	.080	-	-	-	-	-	-

- Invalid Data / Not Calculated
nd Average is less than Min. Detectable Level
m One or more readings Missing
* Average is above Provincial Std/Criteria

Percent Valid Data Required for Valid Average: 90.0 %

LONDON_88 : A232

Start: 88/06/23 09:02 Scan: 60 sec
Average: 60.00 min Report: 15.00 min
Loc: TOURISM INFO PRG LOT OFF WELL.

Time	CO	THC	SO2	Non-CH4	Methane	NOx	NO2	NO	Ozone	SolarRad	Temp	Humidity	Barom	Wind-Spd	Wind-Dir
09:02-10:02	.3	1.88	nd	.73	1.14	.01	nd	nd	.012	.055	20.1	55.	994.1	18.	6.

LONDON_88 : A232

Statistics	CO	THC	SO2	Non-CH4	Methane	NOx	NO2	NO	Ozone	SolarRad	Temp	Humidity	Barom	Wind-Spd	Wind-Dir
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	W/cm^2	d C	%-rel	mbar-sal	km/h	deg
Arith. Mean	.25	1.884	.005	.736	1.142	.014	.005	.007	.013	.0565	20.2	53.9	994.2	-	-
Std. Dev.	.11	.022	.000	.026	.010	.005	.001	.004	.006	.0040	.6	5.5	.2	-	-
Geo. Mean	.22	1.884	.005	.736	1.142	.014	.005	.007	.011	-	-	-	-	-	-
Geo.Std.Dev	1.70	1.012	1.000	1.035	1.009	1.441	1.217	1.520	2.000	-	-	-	-	-	-
Min Reading	.05	1.839	.005	.688	1.119	.005	.005	.005	.002	.0482	18.9	44.4	993.8	8.0	.8
Max Reading	.45	1.946	.005	.819	1.160	.027	.011	.016	.022	.0643	21.3	62.3	994.6	35.0	359.7
Min Average	.23	1.880	.005	.730	1.142	.013	.005	.006	.012	.0553	20.1	52.6	994.1	17.6	.9
Max Average	.27	1.883	.005	.736	1.145	.014	.005	.007	.015	.0577	20.2	55.4	994.2	19.8	360.0
# Valid Reqs	70.	70.	70.	70.	70.	70.	70.	70.	70.	70.	70.	70.	70.	70.	70.
Min.Det.Lev	.10	.100	.010	.100	.100	.010	.010	.010	.004	-	-	-	950.0	-	-
1 hr Crit.	30.00	-	.250	-	-	-	.200	-	.080	-	-	-	-	-	-

- Invalid Data / Not Calculated
nd Average is less than Min. Detectable Level
m One or more readings Missing
e Average is above Provincial Std/Criteria

Percent Valid Data Required for Valid Average: 90.0 %

LONDON_88 : A233

Start: 88/06/23 10:58 Scan: 60 sec
Average: 60.00 min Report: 15.00 min
Loc: EBURY CR.(BY #97) DOWNWIND

Time	CO	THC	SO2	Non-CH4	Methane	NOx	NO2	NO	Ozone	SolarRad	Temp	Humidity	Barom	Wind-Spd	Wind-Dir
10:58-11:58	.8	2.13	nd	.96	1.16	.03	nd	.02	.024	.071	23.9	37.	995.3	10.	354.
11:13-12:13	.7	2.10	nd	.93	1.15	.03	nd	.02	.025	.081	24.1	35.	995.4	10.	352.
11:28-12:28	.7	2.09	nd	.92	1.15	.03	nd	.02	.025	.083	24.3	35.	995.4	10.	350.
11:43-12:43	.7	2.09	nd	.93	1.15	.03	nd	.02	.025	.085	24.4	34.	995.4	10.	348.
11:58-12:58	.6	2.11	nd	.95	1.15	.03	nd	.02	.025	.086	24.2	35.	995.4	10.	344.
12:13-13:13	.7	2.15	nd	.98	1.15	.04	nd	.03	.025	.087	24.2	34.	995.4	11.	340.
12:28-13:28	.6	2.18	nd	1.02	1.14	.03	nd	.02	.026	.087	24.4	34.	995.4	10.	340.
12:43-13:43	.6	2.27	nd	1.12	1.14	.03	nd	.02	.026	.088	24.5	34.	995.4	10.	342.
12:58-13:58	.5	2.36	nd	1.19	1.15	.03	nd	.02	.026	.088	24.8	33.	995.4	9.	347.
13:13-14:13	.5	2.42	nd	1.24	1.15	.03	nd	.02	.026	.088	24.9	33.	995.4	9.	342.
13:28-14:28	.5	2.45	nd	1.27	1.16	.03	nd	.02	.026	.087	24.8	33.	995.3	10.	341.

LONDON_88 : A233

Statistics	CO	THC	SO2	Non-CH4	Methane	NOx	NO2	NO	Ozone	SolarRad	Temp	Humidity	Barom	Wind-Spd	Wind-Dir
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	W/cm^2	d C	%-rel	mbar-msl	km/h	deg
Arith. Mean	.64	2.234	.005	1.064	1.154	.029	.006	.022	.025	.0024	24.3	34.6	995.4	-	-
Std. Dev.	.49	.194	.000	.185	.017	.010	.003	.015	.002	.0117	.6	1.8	.1	-	-
Geo. Mean	.49	2.226	.005	1.049	1.154	.023	.006	.017	.025	-	-	-	-	-	-
Geo.Std.Dev	2.13	1.088	1.000	1.178	1.015	2.061	1.397	2.103	1.064	-	-	-	-	-	-
Min Reading	.05	2.004	.005	.855	1.083	.005	.005	.005	.020	.0228	22.7	31.2	995.1	1.1	.6
Max Reading	3.45	3.292	.005	2.033	1.196	.091	.020	.072	.029	.0887	25.6	40.9	995.6	26.8	359.5
Min Average	.47	2.085	.005	.920	1.139	.026	.006	.019	.024	.0710	23.9	33.0	995.3	9.0	338.0
Max Average	.81	2.464	.005	1.278	1.163	.036	.007	.027	.026	.0879	24.9	36.5	995.4	10.9	356.1
# Valid Rdgs	212.	212.	212.	212.	212.	212.	212.	212.	212.	212.	212.	212.	212.	212.	212.
Min.Det.Lev	.10	.100	.010	.100	.100	.010	.010	.010	.004	-	-	-	950.0	-	-
1 hr Crit.	30.00	-	.250	-	-	-	.200	-	.080	-	-	-	-	-	-

- Invalid Data / Not Calculated
nd Average is less than Min. Detectable Level
m One or more readings Missing
* Average is above Provincial Std/Criteria

Percent Valid Data Required for Valid Average: 90.0 %
Averaging Started at Nearest: .0 min
Averages updated every SCAN time

LONDON_88 : A234

Start: 88/06/23 14:52 Scan: 60 sec
Average: 60.00 min Report: 15.00 min
Loc: Arthur Stringer Public School

Time	CO	TNC	SO2	Non-CH4	Methane	NOx	NO2	NO	Ozone	SolarRad	Temp	Humidity	Barom	Wind-Spd	Wind-Dir
14:52-15:52	.2	2.18	nd	1.01	1.16	.01	nd	nd	.028	.079	22.9	35.	995.1	20.	330.
15:07-16:07	.2	2.13	nd	.96	1.15	.02	nd	.01	.028	.077	22.8	35.	995.1	21.	326.
15:22-16:22	.2	2.09	nd	.93	1.15	.02	nd	.01	.028	.074	22.5	35.	995.1	22.	330.
15:37-16:37	.3	2.08	nd	.92	1.15	.02	nd	.01	.027	.071	22.5	35.	995.1	21.	327.
15:52-16:52	.4	2.09	nd	.93	1.15	.02	nd	.01	.027	.068	22.5	35.	995.0	20.	329.
16:07-17:07	.4	2.10	nd	.94	1.15	.02	nd	nd	.027	.065	22.5	36.	995.0	20.	326.
16:22-17:22	.5	2.11	nd	.95	1.14	.02	nd	nd	.026	.061	22.5	36.	995.1	18.	323.
16:37-17:37	.5	2.11	nd	.95	1.15	.02	nd	nd	.027	.058	22.4	36.	995.0	19.	325.
16:52-17:52	.5	2.09	nd	.94	1.14	.02	nd	nd	.027	.054	22.1	37.	995.1	19.	323.
17:07-18:07	.5	2.08	nd	.93	1.14	.01	nd	nd	.027	.050	22.3	36.	995.1	17.	327.

LONDON_88 : A234

Statistics	CO	THC	SO2	Non-CH4	Methane	NOx	NO2	NO	Ozone	SolarRad	Temp	Humidity	Barom	Wind-Spd	Wind-Dir
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	W/cm^2	d C	%-rel	mbar-sal	km/h	deg
Arith. Mean	.36	2.110	.005	.948	1.148	.015	.005	.010	.027	.0637	22.5	35.7	995.1	-	-
Std. Dev.	.23	.084	.000	.073	.019	.009	.001	.006	.001	.0130	.6	.9	.2	-	-
Geo. Mean	.29	2.100	.005	.945	1.148	.013	.005	.008	.027	-	-	-	-	-	-
Geo.Std.Dev	2.10	1.040	1.000	1.077	1.016	1.853	1.201	1.754	1.056	-	-	-	-	-	-
Min Reading	.05	1.987	.005	.789	1.109	.005	.005	.005	.022	.0405	21.2	33.6	992.9	4.2	.1
Max Reading	1.68	2.474	.005	1.277	1.205	.060	.014	.047	.031	.0832	23.9	38.1	995.2	38.3	359.6
Min Average	.16	2.058	.005	.903	1.137	.014	.005	.008	.026	.0471	22.1	35.0	995.0	16.8	322.3
Max Average	.54	2.182	.005	1.010	1.156	.019	.006	.013	.028	.0790	22.9	36.7	995.1	22.2	330.3
# Valid Rdgs	208.	208.	208.	208.	208.	208.	208.	208.	208.	208.	208.	208.	208.	208.	208.
Min.Det.Lev	.10	.100	.010	.100	.100	.[illegible]	.010	.010	.004	-	-	-	950.0	-	-
1 hr Crit.	30.00	-	.250	-	-	-	.200	-	.080	-	-	-	-	-	-

- \- Invalid Data / Not Calculated
- nd Average is less than Min. Detectable Level
- m One or more readings Missing
- * Average is above Provincial Std/Criteria

Percent Valid Data Required for Valid Average: 90.0 %
Averaging Started at Nearest: .0 min
Averages updated every SCAN time

LONDON_88 : A235

Start: 88/06/23 18:58 Scan: 60 sec
Average: 60.00 min Report: 15.00 min
Loc: UPW AT VICT HOSP PKG LOT

Time	CO	THC	SO2	Non-CH4	Methane	NOx	NO2	NO	Ozone	SolarRad	Temp	Humidity	Barom	Wind-Spd	Wind-Dir
18:58-19:58	.5	1.99	nd	.87	1.11	.02	nd	.01	.027	.018	21.0	34.	999.0	16.	334.

LONDON_88 : A235

Statistics	CO	THC	SO2	Non-CH4	Methane	NOx	NO2	NO	Ozone	SolarRad	Temp	Humidity	Barom	Wind-Spd	Wind-Dir
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	W/cm^2	d C	%-rel	mber-sel	km/h	deg
Arith. Mean	.54	1.987	.005	.862	1.114	.021	.007	.011	.027	.0161	20.7	33.9	999.0	-	-
Std. Dev.	.20	.053	.000	.046	.008	.012	.003	.010	.002	.0084	.9	1.1	.1	-	-
Geo. Mean	.51	1.986	.005	.860	1.114	.019	.007	.009	.027	-	-	-	-	-	-
Geo.Std.Dev	1.43	1.026	1.000	1.053	1.007	1.571	1.513	1.905	1.068	-	-	-	-	-	-
Min Reading	.19	1.908	.005	.701	1.102	.005	.005	.005	.021	.0040	19.1	32.5	998.9	7.3	.9
Max Reading	1.65	2.150	.005	1.011	1.131	.071	.015	.055	.030	.0317	22.0	36.5	999.2	28.0	359.6
Min Average	.52	1.984	.005	.859	1.113	.020	.007	.010	.027	.0138	20.5	33.6	999.0	15.6	334.0
Max Average	.54	1.992	.005	.865	1.114	.022	.007	.012	.027	.0179	21.0	34.1	999.0	16.1	336.9
# Valid Rdgs	71.	71.	71.	71.	71.	71.	71.	71.	71.	71.	71.	71.	71.	71.	71.
Min.Det.Lev	.10	.100	.010	.100	.100	.010	.010	.010	.004	-	-	-	950.0	-	-
1 hr Crit.	30.00	-	.250	-	-	-	.200	-	.080	-	-	-	-	-	-

- Invalid Data / Not Calculated
nd Average is less than Min. Detectable Level
m One or more readings Missing
* Average is above Provincial Std/Criteria

Percent Valid Data Required for Valid Average: 90.0 %

LONDON_88 : A236

Start: 88/06/23 20:35 Scan: 60 sec
Average: 60.00 min Report: 15.00 min
Loc: Arthur Stringer Public School

Time	CO	THC	SO2	Non-CH4	Methane	NOx	NO2	NO	Ozone	SolarRad	Temp	Humidity	Barom	Wind-Spd	Wind-Dir
20:35-21:35	.9	2.44	nd	1.09	1.35	.04	.01	.02	.025	.000	16.3	39.	995.6	2.	349.

LONDON_88 : A236

Statistics	CO	THC	SO2	Non-CH4	Methane	NOx	NO2	NO	Ozone	SolarRad	Temp	Humidity	Barom	Wind-Spd	Wind-Dir
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	W/cm^2	d C	%-rel	mbar-sal	km/h	deg
Arith. Mean	.87	2.459	.005	1.090	1.351	.036	.015	.020	.024	.0003	16.2	39.3	995.6	-	-
Std. Dev.	1.18	.410	.000	.346	.105	.042	.006	.039	.004	.0005	.7	3.0	.2	-	-
Geo. Mean	.71	2.431	.005	1.061	1.347	.029	.013	.011	.024	-	-	-	-	-	-
Geo.Std.Dev	1.58	1.161	1.000	1.277	1.082	1.770	1.646	2.424	1.195	-	-	-	-	-	-
Min Reading	.44	1.936	.005	.790	1.133	.017	.005	.005	.013	.0000	15.4	35.2	995.3	.0	2.4
Max Reading	9.15	4.380	.005	2.957	1.590	.288	.032	.260	.030	.0016	17.5	43.3	995.9	13.4	350.5
Min Average	.88	2.444	.005	1.088	1.346	.036	.014	.020	.024	.0002	16.2	39.1	995.6	1.6	349.5
Max Average	.88	2.467	.005	1.105	1.352	.037	.015	.020	.025	.0003	16.3	39.4	995.6	1.9	350.6
# Valid Rdgs	62.	62.	62.	62.	62.	62.	62.	62.	62.	62.	62.	62.	62.	62.	62.
Min.Det.Lev	.10	.100	.010	.100	.100	.010	.010	.010	.004	-	-	-	950.0	-	-
1 hr Crit.	30.00	-	.250	-	-	-	.200	-	.080	-	-	-	-	-	-

- Invalid Data / Not Calculated
nd Average is less than Min. Detectable Level
m One or more readings Missing
* Average is above Provincial Std/Criteria

Percent Valid Data Required for Valid Average: 90.0 %

LONDON_88 : A242

Start: 88/06/24 09:54 Scan: 60 sec
Average: 60.00 min Report: 15.00 min
Loc: WHETTER AVE. (BY 751)ROWNTREE PK

Time	CO	THC	SO2	Non-CH4	Methane	NOx	NO2	NO	Ozone	SolarRad	Temp	Humidity	Barom	Wind-Spd	Wind-Dir
09:54-10:54	.8	2.31	nd	1.07	1.23	.04	.02	.03	.021	.063	22.8	42.	1003.8	5.	142.
10:09-11:09	.9	2.37	nd	1.13	1.24	.05	.02	.03	.022	.065	23.4	41.	1003.7	4.	162.

LONDON_88 : A242

Statistics	CO	THC	SO2	Non-CH4	Methane	NOx	NO2	NO	Ozone	SolarRad	Temp	Humidity	Barom	Wind-Spd	Wind-Dir
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	W/cm^2	d C	%-rel	mbar-sal	km/h	deg
Arith. Mean	.90	2.300	.006	1.136	1.235	.050	.017	.032	.022	.0651	23.3	41.1	1003.7	-	-
Std. Dev.	.75	.215	.002	.200	.009	.026	.004	.022	.002	.0042	1.2	1.2	.3	-	-
Geo. Mean	.70	2.271	.005	1.120	1.235	.045	.017	.026	.022	-	-	-	-	-	-
Geo.Std.Dev	2.03	1.089	1.264	1.179	1.008	1.570	1.262	1.916	1.098	-	-	-	-	-	-
Min Reading	.15	2.141	.003	.914	1.219	.020	.010	.005	.018	.0577	21.1	37.9	1003.2	.0	68.3
Max Reading	5.24	3.265	.012	2.018	1.277	.163	.033	.126	.027	.0732	25.7	43.3	1004.2	15.7	335.5
Min Average	.78	2.306	.005	1.065	1.233	.042	.016	.025	.021	.0629	22.8	40.7	1003.6	4.0	142.2
Max Average	1.02	2.438	.006	1.191	1.237	.054	.018	.034	.023	.0670	23.9	41.7	1003.8	5.1	172.9
# Valid Rdgs	85.	85.	85.	85.	85.	85.	85.	85.	85.	85.	85.	85.	85.	85.	85.
Min.Det.Lev	.10	.100	.010	.100	.100	.010	.010	.010	.004	-	-	-	950.0	-	-
1 hr Crit.	30.00	-	.250	-	-	-	.200	-	.080	-	-	-	-	-	-

- Invalid Data / Not Calculated
nd Average is less than Min. Detectable Level
m One or more readings Missing
* Average is above Provincial Std/Criteria

LONDON_88 : A243

Start: 88/06/24 12:34 Scan: 60 sec
Average: 60.00 min Report: 15.00 min
Loc: 200m SOUTH/WEST OF STACK(UPWIND)

Time	CO	THC	SO2	Non-CH4	Methane	NOx	NO2	NO	Ozone	SolarRad	Temp	Humidity	Barom	Wind-Spd	Wind-Dir
12:34-13:34	.7	2.93	nd	1.64	1.26	.02	nd	.01	.038	.088	26.2	32.	999.9	6.	173.

LONDON_88 : A243

Statistics	CO	THC	SO2	Non-CH4	Methane	NOx	NO2	NO	Ozone	SolarRad	Temp	Humidity	Barom	Wind-Spd	Wind-Dir
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	W/cm^2	d C	%-rel	mbar-sal	km/h	deg
Arith. Mean	.76	2.943	.005	1.650	1.262	.020	.008	.011	.038	.0800	26.3	32.1	999.8	-	-
Std. Dev.	.62	.135	.001	.123	.014	.021	.005	.016	.002	.0091	.7	1.4	.3	-	-
Geo. Mean	.63	2.940	.005	1.654	1.262	.016	.007	.007	.038	-	-	-	-	-	-
Geo.Std.Dev	1.70	1.046	1.201	1.070	1.011	1.887	1.619	2.079	1.047	-	-	-	-	-	-
Min Reading	.20	2.838	.005	1.562	1.246	.005	.005	.005	.031	.0407	24.4	29.9	999.1	.0	13.6
Max Reading	3.86	3.643	.011	2.325	1.325	.119	.027	.089	.040	.0897	27.7	35.4	1000.3	17.3	315.6
Min Average	.74	2.926	.005	1.645	1.259	.021	.007	.011	.038	.0796	26.2	32.0	999.8	5.5	172.9
Max Average	.80	2.945	.005	1.660	1.262	.022	.008	.011	.038	.0797	26.3	32.3	999.9	5.9	178.9
# Valid Rdgs	60.	60.	60.	60.	60.	60.	60.	60.	60.	60.	60.	60.	60.	60.	60.
Min.Det.Lev	.10	.100	.010	.100	.100	.010	.010	.010	.004	-	-	-	950.0	-	-
1 hr Crit.	30.00	-	.250	-	-	-	.200	-	.080	-	-	-	-	-	-

- Invalid Data / Not Calculated
nd Average is less than Min. Detectable Level
m One or more readings Missing
* Average is above Provincial Std/Criteria

Percent Valid Data Required for Valid Average: 90.0 %

LONDON_88 : A244

Start: 88/06/24 14:06 Scan: 60 sec
Average: 60.00 min Report: 15.00 min
Loc: HERKIMER ST.(247)ROWNTREE PK

Time	CO	THC	SO2	Non-CH4	Methane	NOx	NO2	NO	Ozone	SolarRad	Temp	Humidity	Barom	Wind-Spd	Wind-Dir
14:06-15:06	.8	3.22	nd	1.92	1.28	.03	.01	.01	.041	.079	27.6	29.	1001.2	5.	149.
14:21-15:21	.6	3.22	nd	1.92	1.28	.02	.01	nd	.044	.077	27.4	29.	1000.9	6.	142.
14:36-15:36	.4	3.26	nd	1.95	1.28	.01	nd	nd	.045	.075	27.2	29.	1000.6	7.	140.
14:51-15:51	.6	3.35	nd	2.03	1.29	.02	nd	nd	.046	.074	27.7	29.	1000.3	6.	152.
15:06-16:06	1.0	3.51	nd	2.17	1.30	.03	.01	.02	.046	.071	28.2	28.	1000.1	5.	171.
15:21-16:21	1.2	3.64	nd	2.30	1.31	.05	.01	.03	.045	.068	28.7	27.	999.8	5.	176.
15:36-16:36	1.3	3.72	nd	2.37	1.32	.05	.02	.03	.044	.065	29.0	26.	999.5	5.	191.

LONDON_88 : A244

Statistics	CO	TNC	SO2	Non-CH4	Methane	NOx	NO2	NO	Ozone	SolarRad	Temp	Humidity	Barom	Wind-Spd	Wind-Dir
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	W/cm^2	d C	%-rel	mbar-msl	km/h	deg
Arith. Mean	.90	3.457	.005	2.131	1.295	.034	.014	.019	.044	.0697	20.2	27.5	1000.2	-	-
Std. Dev.	1.08	.317	.001	.297	.020	.039	.007	.034	.004	.0114	1.0	1.9	.9	-	-
Geo. Mean	.66	3.444	.005	2.113	1.295	.024	.012	.009	.043	-	-	-	-	-	-
Geo.Std.Dev	1.97	1.090	1.160	1.135	1.016	2.110	1.801	2.643	1.097	-	-	-	-	-	-
Min Reading	.24	3.068	.005	1.772	1.267	.005	.005	.005	.032	.0333	25.8	23.7	998.7	.0	87.6
Max Reading	7.64	5.100	.011	3.712	1.373	.288	.036	.246	.049	.0816	29.7	32.1	1001.8	19.6	354.1
Min Average	.44	3.219	.005	1.915	1.276	.014	.008	.005	.041	.0587	27.2	25.9	999.3	4.7	137.6
Max Average	1.33	3.742	.005	2.394	1.315	.053	.018	.034	.046	.0788	29.0	29.3	1001.2	7.5	191.2
# Valid Rdgs	162.	162.	162.	162.	162.	162.	162.	162.	162.	162.	162.	162.	162.	162.	162.
Min.Det.Lev	.10	.100	.010	.100	.100	.010	.010	.010	.004	-	-	-	950.0	-	-
1 hr Crit.	30.00	-	.250	-	-	-	.200	-	.080	-	-	-	-	-	-

- \- Invalid Data / Not Calculated
- nd Average is less than Min. Detectable Level
- m One or more readings Missing
- * Average is above Provincial Std/Criteria

Percent Valid Data Required for Valid Average: 90.0 %
Averaging Started at Nearest: .0 min
Averages updated every SCAN time

A P P E N D I X B

Volatile Organic Compounds

Complete Data Set

	A212	A213	A222	A223	A224_1	A224_2	A232	A233_1	A233_2	A236_1	A236_2	A235	A242	A243	A244
	1448-1548	1611-1711	0820-0920	1017-1047	1203-1303	1400-1500	0900-1000	1050-1150	1240-1340	1450-1550	1650-1750	1855-1955	1000-1100		1410-1510
	JUN 21/88	JUN 21/88	JUN 22/88	JUN 22/88	JUN 22/88	JUN 22/88	JUN 23/88	JUN 23/88	JUN 23/88	JUN 23/88	JUN 23/88	JUN 23/88	JUN 24/88	JUN 24/88	JUN 24/88
	15:52	17:13	09:25	10:57	13:09	15:05	10:05	11:55	13:44	15:55	17:53	19:59	11:06	13:33	15:13
1 PROPANE	D	ND	12.3	13.0	ND	D	D	D	D	D (1)	D	D	D (1)		5.9 (1)
2 PROPADIENE								ND	ND					ND	
3 PROPYNE	ND								ND					ND	
4 CYCLOPROPANE															
5 2-METHYLPROPANE	D		9.0	D			D	D	19.9	5.9	D	D		5.4	16.0
6 CHLOROETHENE															
7 1-BUTENE	D	ND	D	ND	ND	D		ND	D	ND	ND	ND	D	ND	D
8 1,3-BUTADIENE	ND	ND	ND			D (1)			D (1)					ND	ND
9 BUTANE	13.2 (1)	11.0 (1)	25.1 (1)	11.9	5.4	10.5 (1)	6.3	14.7	48.1 (1)	14.8	D	10.1	8.7 (1)	13.0 (1)	41.5 (1)
10 1-BUTYNE															
11 CHLOROETHANE			ND												
12 3-METHYL-1-BUTENE			ND						ND						ND
13 2-METHYLBUTANE	13.2	9.9	21.6	12.5	5.5	10.8 (1)	8.5	15.2	26.5	13.3	D	10.6	10.3 (1)	11.7	33.0
14 2-METHYL-1-BUTENE	ND								D (1)						
15 PENTANE	7.0 (1)	D	12.8	5.5	D	6.3 (1)	D	8.4	10.0 (1)	D	D	D	6.2 (1)	6.5	16.7
16 2-METHYL-1,3-BUTADIENE	6.2	7.3	D		ND	D (1)		ND	6.9		D				
17 trans-2-PENTENE	D	D	D	ND	ND	D		D (1)	D	D (1)		D		ND	D
18 cis-2-PENTENE	ND	ND	ND			ND		ND	ND			ND		ND	ND
19 DICHLOROMETHANE			D	D		D							D (1)		
20 2-METHYL-2-BUTENE	ND	ND	ND						ND	ND	ND	ND			
21 2,2-DIMETHYLBUTANE	ND	ND	D	ND	ND	ND	ND	D (1)	ND	ND		ND	ND	ND	D
22 trans-1,2-DICHLOROETHENE															
23 3-METHYL-1-PENTENE								ND							
24 4-METHYL-1-PENTENE								ND							
25 CYCLOPENTANE	ND	ND	ND	ND	ND	D (1)	ND	ND	ND	ND	ND	ND	D (1)	ND	D (1)
26 2,3-DIMETHYLBUTANE	D (1)	ND	D (1)	ND	ND	D (1)	ND	D (1)	D (1)	ND	ND	ND	D (1)	D (1)	D (1)
27 2-METHYLPENTANE	D	D	8.0	D	D	5.4 (1)	D (1)	7.0	5.1	D (1)	D	D	5.0 (1)	5.4	9.9
28 3-METHYLPENTANE	D	D	5.1	D	D	D (1)	D (1)	D	D	D	ND	D	D (1)	D	6.0 (1)
29 1-HEXENE	ND					ND		ND	ND				ND	ND	ND
30 cis-1,3-DICHLOROETHENE															
31 2-CHLOROBUTANE							ND	ND						ND	
32 HEXANE	D	D	5.9	D (1)	D (1)		D	5.0	D	D	ND	D (1)	D (1)	D	6.0
33 1-CHLORO-2-METHYLPROPANE															
34 TRICHLOROMETHANE															

	A212	A213	A222	A223	A224_1	A224_2	A232	A233_1	A233_2	A234_1	A234_2	A235	A242	A243	A244
	1440-1540	1611-1711	0820-0920	1017-1047	1203-1303	1400-1500	0900-1000	1050-1150	1240-1340	1450-1550	1650-1750	1855-1955	1000-1100		1410-1510
	JUN 21/88	JUN 21/88	JUN 22/88	JUN 22/88	JUN 22/88	JUN 22/88	JUN 23/88	JUN 23/88	JUN 23/88	JUN 23/88	JUN 23/88	JUN 23/88	JUN 24/88	JUN 24/88	JUN 24/88
	15:52	17:13	09:25	10:57	13:09	15:05	10:05	11:55	13:44	15:55	17:53	19:59	11:06	13:33	15:13
35 3-CHLORO-2-METHYLPROPENE	ND														
36 METHYLCYCLOPENTANE	D (1)	ND	D (1)		ND	D (1)	ND	D (1)	D (1)	ND	ND	ND	5.1 (1)		ND
37 2,2-DIMETHYLPENTANE	ND		ND	D (1)		ND	ND	ND	ND				D (1)	D (1)	D (1)
38 1,2-DICHLOROETHANE													ND	ND	ND
39 2,4-DIMETHYLPENTANE	ND	ND	ND	ND	ND	ND	ND	ND	ND			ND	1333.0 (1)		
40 1,1,1-TRICHLOROETHANE	10.7	11.6 (1)	10.5	26.8	11.4 (1)		15.0	7.9 (1)	8.5 (1)	11.6	9.1 (1)		ND	ND	ND
41 1-CHLOROBUTANE													14.6 (1)	14.9 (1)	12.6 (1)
42 BENZENE	D (1)		D (1)	D	D (1)	D (1)	D (1)	D (1)	D (1)	ND	ND	D (1)	5.5 (1)	D (1)	D (1)
43 TETRACHLOROMETHANE			D (1)		D (1)					D (1)					
44 3,3-DIMETHYLPENTANE			ND					ND				ND	ND	ND	ND
45 CYCLOHEXANE	ND		ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
46 2,3-DIMETHYLPENTANE		D (1)								ND	ND	D (1)			
47 2-METHYLHEXANE	D	1.0 (1)	D	D	ND	D (1)	D	D	D		ND	D (1)	D (1)	D	D
48 CYCLOHEXENE															
49 DIBROMOMETHANE		ND	D (1)												
50 1,2-DICHLOROPROPANE													D (1)		
51 3-METHYLHEXANE	D		D (1)	D	ND	D	D	D	D	ND	ND	ND	D (1)	D	D
52 2,3-DICHLOROPROPENE															
53 TRICHLOROETHENE			ND												
54 2,2,4-TRIMETHYLPENTANE	D	D	D (1)	D	D	D	5.7	D (1)	D		ND	D	D	D (1)	D
55 1-HEPTENE															
56 HEPTANE	ND	ND	D	ND	ND	D	D	D	D			ND	D	D	D
57 trans-2-HEPTENE															
58 METHYLCYCLOHEXANE	ND	ND	ND	ND	ND	ND	D	ND	ND	ND	ND	ND	ND	D	ND
59 2,2-DIMETHYLHEXANE			ND			ND			ND				ND		
60 ETHYLCYCLOPENTANE									ND						
61 4-METHYLCYCLOHEXENE			ND			ND	ND	ND							
62 2,5-DIMETHYLHEXANE	ND		ND			ND	ND	ND	ND					ND	
63 1-CHLOROPENTANE			ND			ND	ND		ND				ND	ND	ND
64 1,1,2-TRICHLOROETHANE													ND		
65 2,3,4-TRIMETHYLPENTANE	ND	ND	ND	ND	ND	ND	ND	ND	ND			ND	ND	ND	ND
66 TOLUENE	5.2 (1)	D (1)	10.9 (1)	5.6	D	13.0 (1)	D (1)	7.9 (1)	7.6 (1)	D	D	D	6.9 (1)	7.2 (1)	7.9 (1)
67 1,3-DICHLOROPROPANE															
68 2-METHYLHEPTANE	ND	ND	ND			D (1)	ND	ND	ND				D (1)	ND	ND

	A212	A219	A222	A223	A224_1	A224_2	A232	A233_1	A233_2	A234_1	A234_2	A235	A242	A243	A244
	1440-1540	1611-1711	0820-0920	1017-1047	1203-1303	1400-1500	0900-1000	1050-1150	1240-1340	1450-1550	1650-1750	1855-1955	1000-1100		1410-1510
	JUN 21/88	JUN 21/88	JUN 22/88	JUN 22/88	JUN 22/88	JUN 22/88	JUN 23/88	JUN 23/88	JUN 23/88	JUN 23/88	JUN 23/88	JUN 23/88	JUN 24/88	JUN 24/88	JUN 24/88
	15:52	17:13	09:25	10:57	13:09	15:05	10:05	11:55	13:44	15:55	17:53	19:59	11:06	13:33	15:13
69 4-METHYLHEPTANE															
70 c-1,3-DIMETHYLCYCLOHEXANE			ND				ND	ND	ND				ND	ND	
71 3-METHYLHEPTANE	ND	ND	ND			ND	ND	ND	ND			ND	ND	ND	ND
72 1,2-DIBROMOETHANE															
73 1,1-DIMETHYLCYCLOHEXANE															
74 1-OCTENE															
75 trans12DIMETHYLCYCLOHEXA															
76 trans-4-OCTENE															
77 TETRACHLOROETHENE			D (1)	D (1)			ND		ND			ND	ND	D (1)	
78 c-1,4-DIMETHYLCYCLOHEXAN									ND						
79 OCTANE	ND	ND	ND	ND		ND	ND	ND	ND				ND	ND	ND
80 trans-2-OCTENE									ND						
81 cis12DIMETHYLCYCLOHEXANE															
82 CHLOROBENZENE	ND		ND			ND			ND						
83 ETHYLCYCLOHEXANE			ND												
84 1-CHLOROHEXANE															
85 ETHYLBENZENE	1.0 (1)	ND	D (1)			D	ND	D	ND	ND	ND	ND	D (1)	ND	D
86 M,P-XYLENE	D	D	5.9			0.6	D	D	D	ND	ND	D	D (1)	D	D
87 4-METHYLOCTANE	ND		ND												
88 2-METHYLOCTANE								ND							
89 3-METHYLOCTANE															
90 STYRENE									ND						
91 1,4-DICHLOROBUTANE															
92 o-XYLENE	D	ND	D			D	ND	D	D	ND	ND	ND	D (1)	D	D
93 1,1,2,2-TETRACHLOROETHA															
94 1,2,3-TRICHLOROPROPANE															
95 1-NONENE															
96 NONANE	ND	ND	ND	ND	ND	ND	ND						D		
97 ISOPROPYLBENZENE						ND									
98 2-CHLOROTOLUENE															
99 3-CHLOROTOLUENE															
100 4-CHLOROTOLUENE															
101 PROPYLBENZENE	ND	ND	ND			ND		ND	ND				ND		ND
102 3-ETHYLTOLUENE	D	ND	D			D	ND	ND	ND			ND	D	ND	ND

	A212 1440-1540 JUN 21/88 15:52	A213 1611-1711 JUN 21/88 17:13	A222 0820-0920 JUN 22/88 09:25	A223 1017-1047 JUN 22/88 10:57	A226_1 1203-1303 JUN 22/88 13:09	A226_2 1400-1500 JUN 22/88 15:05	A232 0900-1000 JUN 23/88 10:05	A233_1 1050-1150 JUN 23/88 11:55	A233_2 1240-1340 JUN 23/88 13:44	A234_1 1450-1550 JUN 23/88 15:55	A234_2 1650-1750 JUN 23/88 17:53	A235 1855-1955 JUN 23/88 19:59	A242 1000-1100 JUN 24/88 11:06	A243 JUN 24/88 13:33	A244 1410-1510 JUN 24/88 15:13
103 4-ETHYLTOLUENE	ND	ND	ND	ND		D		ND	ND				ND		ND
104 1,3,5-TRIMETHYLBENZENE	ND	ND	ND			ND		ND	ND				D (i)		ND
105 2-ETHYLTOLUENE	D (i)	ND	D (i)			D	ND	D (i)				ND	D (i)	D (i)	
106 tert.BUTYLBENZENE															
107 1,2,4-TRIMETHYLBENZENE															
108 tert.BUTYLCYCLOHEXANE															
109 1,3-DICHLOROBENZENE															
110 1-DECENE															
111 1,5-DICHLOROPENTANE															
112 isoBUTYLBENZENE															
113 sec.BUTYLBENZENE															
114 DECANE															
115 1,2,3-TRIMETHYLBENZENE	ND	ND	D (i)				D (i)	ND	ND				5.2 (i)	D (i)	ND
116 DIISOPROPYLDIMETHYLBENZENE	ND	ND	ND			ND	ND						ND		
117 1,3-DICHLOROBENZENE	ND														
118 INDAN															
119 BUTYLCYCLOHEXANE															
120 1,3-DIETHYLBENZENE															
121 1,4-DIETHYLBENZENE															
122 BUTYLBENZENE															
123 1,2-DIETHYLBENZENE															
124 trans-DECAHYDRONAPHTHALENE															
125 cis-DECAHYDRONAPHTHALENE															
126 UNDECANE	D	ND	D	D	ND	ND	D	D	ND	ND			D (i)	D	D
127 1235-TETRAMETHYLBENZENE															
128 1244-TETRAMETHYLBENZENE															
129 1,3-DIISOPROPYLBENZENE															
130 1234TETRAHYDRONAPHTHALE															
131 1,4-DIISOPROPYLBENZENE															
132 DODECANE	ND	5.1	D	ND	ND	D						3.8			

All concentrations are in ug/m^3 (micrograms per cubic metre)
ND - Not Detected .... 1 ug/m^3
D - Detected ..... 1-5 ug/m^3
(i)- Interference

A P P E N D I X C

Results Summaries for Previous Surveys

1984 Pre-op. I

Table 5
Results Summary - Maximum 1-hr Average Concentration
(ppm, except as noted)

	Monitoring Period #	SO_2	CO	NO_x	Hg_3 ug/m	THC	TOC (ug/m^3)	Upwind or Downwind
August	271 A*	-	-	-	-	-	13	D
	271 B	n.d.	0.7	-	-	1.3	8	U
	281 A	n.d.	-	0.02	-	1.8	20,41	U
	283 B	0.02	1.2	0.03	-	2.4	482,328	D
	302 A	0.03	2.0	0.02	-	1.4	64,121	D
	303 B	n.d.	0.5	n.d.	n.d.	1.3	50,86,36	D
	312 A	0.01	0.9	0.01	-	1.3	18,32	U
	312 B	n.d.	1.1	0.02	0.10	1.3	74,93	D
	313 A	n.d.	0.7	0.01	-	1.7	24,27	D
	313 B	0.01	0.5	n.d.	0.14	1.5	23,20,20	D
	042 B	n.d.	-	-	0.25	1.2	138	D
								some MAMU ex
	043 A	0.02	-	0.02	-	1.4	4,12	D
	043 B	n.d.	2.2	0.06	0.37	1.3	152,209,247	D
								some MAMU ex
	044 A	n.d.	0.7	0.01	-	1.4	4,7	D
September	052 A	n.d.	0.5	0.02	-	1.2	14,12,13	D
	052 B	n.d.	0.2	0.02	0.38	1.4	11,191,72	D
	053 A	n.d.	1.4	0.07	-	1.3	64,90	D
	053 B	n.d.	n.d.	n.d.	0.25	1.3	63,26	D
	063 B	n.d.	0.6	0.02	-	1.1	83,63	D
	064 A	0.01	1.7	0.02	-	1.2	67	D
	071 B	0.04	0.6	0.05	-	1.3	87	D
	072 A	0.04	0.4	0.02	-	1.4	36,65	D
	Ontario Air Quality Criterion	0.25 (1-hr)	30 (1-hr)	0.20 (1-hr) NO_2	2.0 (24-hr)	-	-	
	Min. Det. Level	0.01	0.1	0.01	0.05	0.1		

* - A refers to MAMU #1
  - B refers to MAMU #2

1986 Pre-OP II

TABLE 5

Results Summary - Maximum 1-hr Average Concentration
(ppm, except as noted)

Monitoring Period #	SO_2	CO	NO_2	Hg (ug/m^3)	THC	TOC** (ug/m^3)	upwind or downwind
A011*	-	0.54	0.06	-	2.1	140	background
B012	0.005	5.91	0.02	-	0.8	118,96	DW
A031	-	1.14	0.07	-	3.6	431,320,132,137	DW
A032	-	0.93	0.05	-	2.7	177	DW
B033	0.010	1.79	0.02	0.011	2.1	148,120	DW
B034	0.005	1.60	0.02	0.010	1.2	433	UW(traffic)
A042	-	0.47	0.04	-	2.4	208,40	DW
B042	0.005	2.75	0.02	0.022	1.4	271,109	DW
A102	0.024	0.47	0.04	-	2.3	158,130	DW
B102	0.022	2.14	0.02	0.005	1.1	266,102,111	DW
A103	0.020	1.86	0.06	-	2.6	304	UW
A112	0.005	0.31	0.04	-	1.4	128,153,24	DW
B112	0.005	2.46	0.02	0.005	1.1	431,113,90	DW
A113	0.005	0.54	0.03	-	1.6	98,20	background
B113	0.005	1.27	0.03	0.005	1.2	88	UW
A122	0.005	0.27	0.02	-	1.8	40	DW
B122	0.005	2.22	0.01	0.005	3.2	391,83	DW

December

* A refers to MAMU #1
B refers to MAMU #2

** This list contains all of the TOC results from the gas chromatograph.

\- Not monitored.

overnight, weekends at 985 Adelaide St. South	SO_2	CO	NO_2	Hg	THC	TOC
arithmetic mean	0.006	0.57	0.03	-	1.4	-
maximum 1-hr average	0.027	1.94	0.09	-	2.4	-
Ontario Air Quality Criterion	0.25 (1-hr)	30 (1-hr)	0.20 (1-hr)	2.0 (24-hr)	-	-

APPENDIX D

EFW Process Description and Technical Data

The following is not meant to provide a complete description of the process, and data provided is for information only.

1. The EFW plant is designed to incinerate municipal waste at a normal rate of 300 tons per day, and generate steam by cooling down the hot combustion products in waste heat boilers and economizers.

2. High pressure steam is piped to a turbine generator to generate electricity. Some of the steam is extracted from the turbine to satisfy the heating and cooling requirement of the hospital while the remainder expands further in the turbine, and is eventually condensed.

3. The flue gas treating system consists of dry lime injection and baghouses with all the appropriate monitoring and controlling systems.

4. There are three identical "blocks" of incinerator/boiler/flue gas treating equipment connected into three separate stack flues.

5. Each "block"is able to handle 100 tons per day of municipal waste, which is normal loading of one "block".

6. The height of the stack is 92 metres; the diameter of each flue cone at the exit is 762 mm.

7. Each flue has a mass flow of combustion products of approximately 26,671 kg/hour (wet basis). The temperature of the combustion products at the stack is expected to be 125 C.

8. The anticipated volumetric composition of the combustion products is :

CO2	-	8.6% by volume
O2	-	8.6% by volume
N2	-	68.25% by volume
H2O	-	14.5 % by volume
Miscellaneous	-	0.05% by volume

9. A schematic of the EFW plant process is shown on the following page.

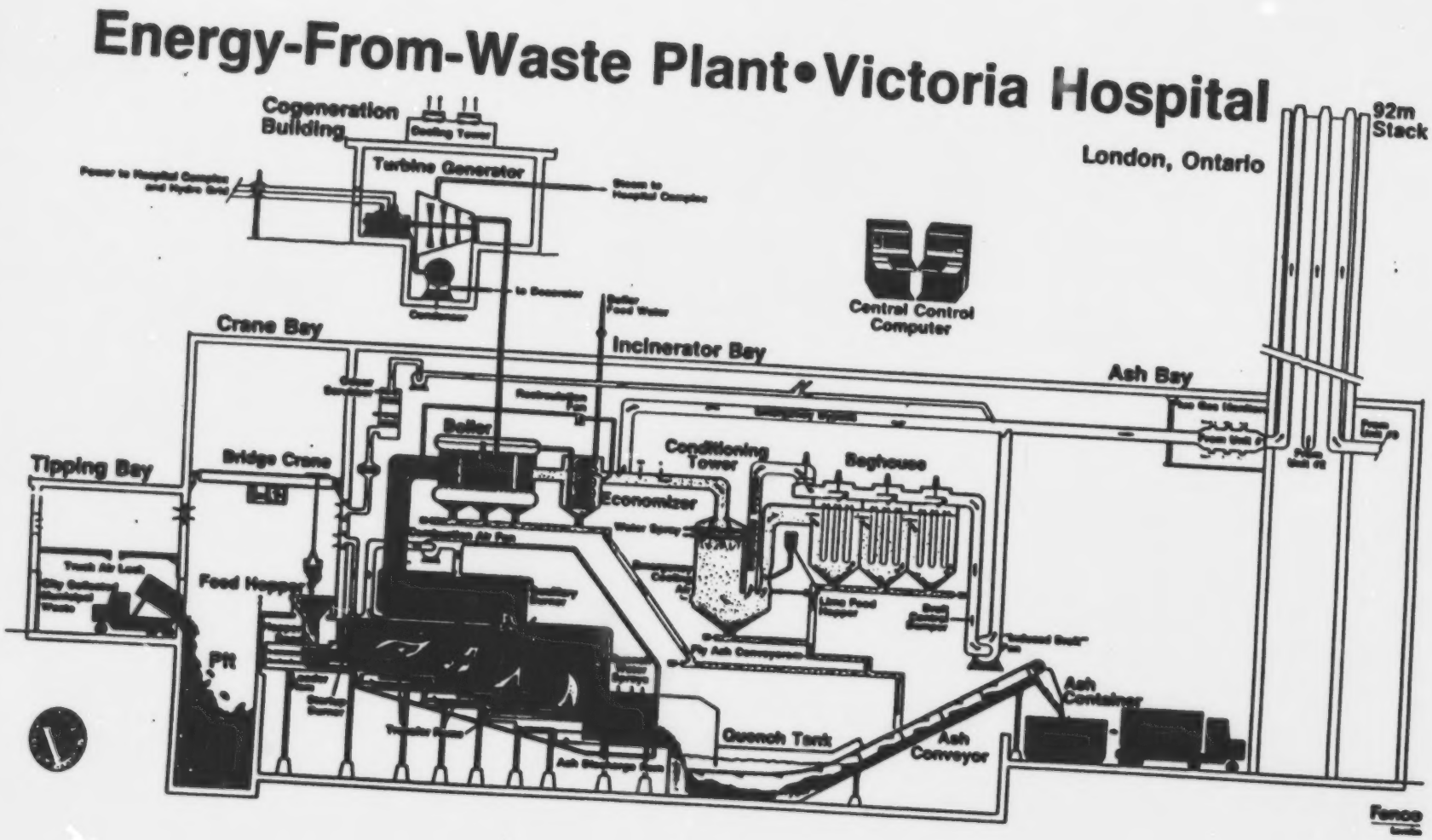


FIGURE Appendix D.1

APPENDIX E

Stack Test
Victoria Hospital
Energy From Waste Plant
Conditions During Survey

Stack testing was scheduled to begin on June 21, 1988. Victoria Hospital staff made the necessary arrangements to have Arthur Gordon Environmental Evaluators Ltd. from St-Hubert, Quebec do the stack test for the Ministry of the Environment. Fenco (with their sub-contractor Procedair) arranged to have a representative from Consumat be on site during the stack testing to setup the incinerators and monitor the operation of the trains.

Preparation before the stack test consisted of doing a routine leak and performance test which includes replacement of faulty bags as required. The gas analyzing equipment was calibrated and checked daily by Victoria Hospital staff. Each train operating parameter was established by the Consumat representative and the plant manager. To ensure that each train would operate normally the plant manager was to oversee the operation from the control room. The Consumat representative would make sure the equipment was operating normally in the field. The weight system on the crane was recalibrated to ensure that an accurate weight of refuse was measured and that each train was burning its designed rate of 100 tons per day.

NOTE: It was discovered a few days after the test began that the weight system on the crane was not accurate. The plant manager conducted a weight test consisting of 30 grapples of refuse where it was determined that an average grapple was 2500 pounds.

The plant manager noted that the trains had been running for over six weeks since the trains were last cleaned. This accounted for the reduced steam production for each train even though the refuse throughput was at 100 tons per day.

The operating parameters were as follows:

DRAFT	...	125 Pa
UPPER CHAMBER TEMP. SET POINT	...	1037 C
BOILER INLET TEMP. SET POINT	...	871 C
BAGHOUSE INLET TEMP. SET POINT	...	150 C

LOAD TIMER BETWEEN 840-960 SECONDS (CONTROL LOWER CHAMBER 760C)

ISBN 0-7729-4123-8

AMBIENT AIR QUALITY
PRE-OPERATIONAL SURVEY

PART II

ENERGY-FROM-WASTE PLANT
VICTORIA HOSPITAL CORPORATION
LONDON, ONTARIO

DECEMBER 1986

ARB-126-87-AQM

JULY 1988

Environment Ontario

Jim Bradley
Minister

ISBN 0-7729-4123-8

ENERGY-FROM-WASTE PLANT
VICTORIA HOSPITAL CORPORATION
LONDON, ONTARIO

AMBIENT AIR QUALITY
PRE-OPERATIONAL SURVEY
PART II

DECEMBER 1986

ARB-126-87-AQM

Prepared for
The Southwestern Region
Ministry of the Environment

by

R. Chapman

Atmospheric Research and Special Programs Section
Air Resources Branch
Ministry of the Environment

July 1988

c Queen's Printer for Ontario, 1988

TABLE OF CONTENTS

		Page
Executive Summary		1
1.0	Introduction	2
2.0	Mobile Air Monitoring Units (MAMU)	2
3.0	Monitoring Locations	3
4.0	Results and Discussion	3
5.0	References	4
Appendix A - Common Pollutants - Complete Data Set		17
Appendix B - Gas Chromatographic Organics Results		35

Executive Summary

Two mobile air monitoring units (MAMU) from the Air Resources Branch measured ambient air quality parameters near the site of the nearly completed Victoria Hospital Corporation Energy-From-Waste (EFW) plant in London during early December 1986. This was the winter portion of the pre-operational survey to determine the background ambient air concentration of a large number of compounds which may be emitted from the EFW plant in various concentrations. None of the compounds, including sulphur dioxide, carbon monoxide, nitrogen dioxide, mercury and a large number of hydrocarbons and chlorinated hydrocarbons, exceeded or approached the Ministry of the Environment air quality standards, criteria or guidelines.

Sommaire

Au début de décembre 1986, la Direction des ressources atmosphériques a mesuré, à l'aide de deux unités mobiles de surveillance de l'air, la qualité de l'air ambiant près du chantier de la nouvelle station de transformation des déchets en énergie de l'hôpital Victoria, à London. Il s'agissait ici du segment d'hiver des analyses préalables à la mise en service et visant à déterminer les concentrations de fond de l'air ambiant pour un grand nombre de composés susceptibles d'être rejetés par la station en question. Aucune des substances, qu'il s'agisse d'anhydride sulfureux, de monoxyde de carbone, d'oxydes d'azote, de mercure ou d'hydrocarbures ou d'hydrocarbures chlorés, ne dépassait, ni même n'atteignait, les normes, critères et lignes directrices énoncés par le ministère de l'Environnement.

1.0 Introduction

At the request of the Southwestern Region, the Monitoring and Instrumentation Development Unit of the Air Resources Branch performed an ambient air quality survey in London during the period December 1 to December 12, 1986. The air sampling was done near the site of the Victoria Hospital Corporation Energy - From - Waste (EFW) plant and was the winter portion (Part II) of the pre-operational survey. The summer portion (Part I) was performed in 1984[1].

The purpose of the survey was to determine the background ambient air concentrations of a large number of compounds which may be emitted from the EFW plant stack in various concentrations, namely: sulphur dioxide (SO_2), carbon monoxide (CO), nitrogen dioxide (NO_2), mercury (Hg), and a large number of hydrocarbons and chlorinated hydrocarbons. Similar surveys will be performed after the EFW plant is in operation in order to assess its impact, if any, on the ambient air quality.

Two mobile air monitoring units (MAMUs) were used to maximize the amount of data obtainable during the allotted survey period.

2.0 Mobile Air Monitoring Units (MAMU)

Each MAMU is a self-contained mobile laboratory equipped with advanced analytical instrumentation dedicated to ambient air monitoring. The instrumentation packages in each vehicle are nearly identical and are listed in Tables 1 and 2. Each MAMU is outfitted with a gas chromatograph (Hewlett-Packard 5880) coupled to a volatile organic compounds (VOC's) preconcentrator of our own design. Ambient air is drawn into the preconcentrator at 100 ml/min where the VOC's are adsorbed in a 10 mm O.D. glass cartridge packed with the adsorbents Carbotrap and Spherocarb.

The sampling periods were 30 or 60 minutes so that the data could be directly compared to Ministry standards or criteria for ambient air. Contaminants trapped by the adsorbents were thermally desorbed, prefocused, and injected onto the GC column head. The samples were

analyzed simultaneously on two 25-metre columns coated with cross-linked SE 54 or OV-1 and detected with flame-ionization detectors. Minimum detection limits were in the 0.1 to 1.0 ug/m^3 range.

3.0 Monitoring Locations

The selection of monitoring locations was based upon the list of "critical receptors" areas noted in an environmental impact study[2] and reproduced in Table 3.

As determined by the wind direction on an hourly basis, the MAMUs were positioned downwind of the site for the EFW plant in whatever critical receptor area was most suitable; otherwise, school yards and apartment building parking lots were the usual monitoring sites. Most of the locations were identical to sites used in the summer portion of the study (Part I)[1]. The precise monitoring locations are listed in Table 4 and displayed on the map in Figure 3.1.

During weekends and overnight, the MAMUs were parked at the MOE regional office, collecting data on all instruments except the GC and Hg analyzers.

4.0 Results and Discussion

A summary of the results is contained in Table 5. Tables 6 and 7 list the characteristics of the common contaminants and the organics measured by MAMUs 1 and 2. Sulphur dioxide (SO_2), carbon monoxide (CO), nitrogen dioxide (NO_2), total hydrocarbons (THC) and mercury (Hg) were found in relatively low concentrations during all monitoring periods. The complete data set for these compounds is in Appendix A. None of the Ministry of Environment air quality standards, criteria and guidelines were exceeded or approached.

The mercury measurements provided a valuable comparison to the mercury levels measured in the summer portion (Part I) of the survey[1]. Since the vapour pressure of elemental mercury is strongly dependent on the ambient temperature, a hypothetical steady source of mercury

emissions would lead to mercury levels at 18°C (Part I) approximately five times higher than at 0°C (Part II). There is much greater confidence in the operation of the mercury analyzer and the reliability of its results for the present study than for Part I. The low mercury levels for the present study are equivalent to winter background levels in Windsor (0.01 to 0.03 ug/m^3) and indicate that a range of 0.05 ug/m^3 to 0.15 ug/m^3 would be expected for a summer study. The mercury levels for the summer study ranged from 0.10 to 0.38 ug/m^3, which seems to be falsely high by a factor of two. In summary, there is no evidence that mercury was present above background levels in either Part I or Part II of the pre-operational survey.

The gas chromatographic (GC) results for 133 organic compounds measured by MAMU 1 and 134 compounds measured by MAMU 2 are contained in Appendix B. The total organic compounds (TOC) concentration, as determined by the gas chromatograph for one-hour or half-hour sampling periods, was usually relatively low compared to values for urban air in Southern Ontario. In comparing the Part II results for TOC with the Part I results it was seen that the range of concentrations has not changed, from 0 to 500 ug/m^3, but the median concentration has increased from 60 ug/m^3 to 130 ug/m^3. However, none of the 134 organic compounds which have Ministry of the Environment air quality standards, criteria or guidelines exceeded or approached those significant levels.

5.0 References

1. Ambient Air Quality Pre-Operational Survey Part I, ARB-082-85-AQM, 1985.

2. Victoria Hospital Consultants report presented at Environmental Assessment Board hearing (1983)

Table 1

THE INSTRUMENTATION OF MOBILE AIR MONITORING UNIT #1

Instrument	Manufacturer	Analytical Technique	Full Scale Sensitivity
THC, CH4, TH-M analyzer	Ingenieur-Produktions-Gruppe Munchen (IPM) RS-t	Dual flame ionization	50 ppm THC (as CH4)
H2S, SO2, NOx sources	Hartmann & Braun Prufgasgenerator	N/A	N/A
TRS/SO2 analyzer	Monitor Labs 8850 c/w ML 8770	Fluorescence	0.5 ppm SO2 0.5 ppm TRS
NOx, NO2, NO analyzer	Monitor Labs 8840	Chemi-Luminescence	1.0 ppm NOx (as NO2)
CO analyzer	Thermo Electron P48	Gas Filter Correlation	100 ppm CO (digital)
O3 analyzer/ source	Dasibi 1003-AAS	UV Absorption	1.0 ppm O3 (digital)
Hewlett Packard Data Acquisition System - HP 85 and HP 3497A			
Gas Chromatograph	HP 5880 Dual Capillary Column c/w HP 86 Data Acquisition System	Flame Ion-ization Det.	as set per calibrations

Meteorological Instrumentation

Instrument	Manufacturer	Scale
** Wind speed	Lambrecht GmBH	km/hr
** Wind direction	Lambrecht GmBH	degrees
Temperature	Weather Measure (WM) T621	degrees Celsius
Humidity	WM-HM-11P	absolute & %
Barometric pressure	WM-BM70-B242	millibars
Solar Radiation	WM Star Pyranometer	milliwatts/cm2

** These instruments are located on top of a 10 metre retractable tower

Table 2

THE INSTRUMENTATION OF MOBILE AIR MONITORING UNIT #2

Instrument	Manufacturer	Analytical Technique	Full Scale Sensitivity
THC, CH4, TH-M analyzer	Ingenieur-Produktions-Gruppe Munchen (IPM) RS-t	Dual flame ionization	50 ppm THC (as CH4)
H2S, SO2, NOx sources	Hartmann & Braun Prufgasgenerator	N/A	N/A
TRS analyzer	Monitor Labs 8850 c/w ML 8770	Fluorescence	0.5 ppm H2S
SO2 analyzer	Monitor Labs 8850	Fluorescence	0.5 ppm SO2
NOx, NO2, NO analyzer	Monitor Labs 8840	Chemi-Luminescence	1.0 ppm NOx (as NO2)
CO analyzer	Thermo Electron P48	Gas Filter Correlation	100 ppm CO (digital)
O3 analyzer/ source	Dasibi 1003-AAS	UV Absorption	1.0 ppm O3 (digital)
Hg analyzer	Scintrex HGP-2	UV Absorption	50 ug/m3
Hewlett Packard Data Acquisition System - HP 85 and HP 3497A			
Gas Chromatograph	HP 5880 Dual Capillary Column c/w HP 86 Data Acquisition System	Flame Ion-ization Det.	as set per calibrations

Meteorological Instrumentation

Instrument	Manufacturer	Scale
** Wind speed	Lambrecht GmBH	km/hr
** Wind direction	Lambrecht GmBH	degrees
Temperature	Weather Measure (WM) T621	degrees Celsius
Humidity	WM-HM-11P	absolute & %
Barometric pressure	WM-BM70-B242	millibars
Solar Radiation	WM Star Pyranometer	milliwatts/cm2

** These instruments are located on top of a 10 metre retractable tower

Table 3

Critical Receptors[1]

	Name	Distance from Victoria Hospital EFW km	Height Above EFW Ground Level m
1.	Bristol Place Apts[2]	0.864	36
2.	Westminister Hospital	0.49	15.6
3.	Pond Mills and Commissioners Rd.	1.77	14.6
4.	Planned Apt. Bldg.[2]	0.30	32
5.	New Victoria Hospital	0.36	29.0
6.	New Parkwood Hospital[2]	0.231	28
7.	Grade @ 6 km SW of site	6.04	52.2
8.	Grade @ 8 km SW of site	8.05	43.9

NOTE: [1]. As contained in Victoria Hospital's consultant's report presented at Environmental Assessment Board hearing in early 1983.
[2]. Revised distance and elevation of receptor

TABLE 4

Monitoring Locations and Periods

Date 1986	MAMU #1 Period # Time	MAMU #1 Location	MAMU #1 Map I.D. Fig. 3.1	MAMU #2 Period # Time	MAMU #2 Location	MAMU #2 Map I.D. Fig. 3.1
December						
1	A011 14:32-16:33	Parking lot, S of New Victoria Hospital	A	B012 14:41-16:13	Parkwood Hosp. W. Side	B
				B033 11:36-14:12	38 Silverdale Cres.	D
3	A031 09:57-13:57	53 Parliament Cres.	C			
	A032 14:24-15:34	Near school at Thompson & Chesterfield	E	B034 14:36-15:12	Parkwood Hosp. W. Side	B
				B042 10:46-13:25	Westminister Apts.	G
4	A042 11:59-14:57	Bristol Apts.	F			
				B102 10:58-16:05	Bristol Apts.	F
10	A102 10:34-14:26	Bristol Apts.	F			
				B112 11:28-14:58	Thompson Rd. at Park	J
	A103 14:54-16:45	Parking Lot, S of New Victoria Hosp.	A	B113 15:23-16:27	Parkwood Hosp. S. Side	B
11	A112 11:04-15:06	Gladstone Ave. at Dieppe Apts.	H			
				B122 09:59-12:14	28 Parliament Cres.	C
	A113 15:25-16:48	Bristol Apts.	F			
12	A122 10:46-12:01	Parliament Cres. at Millbank Dr.	K			

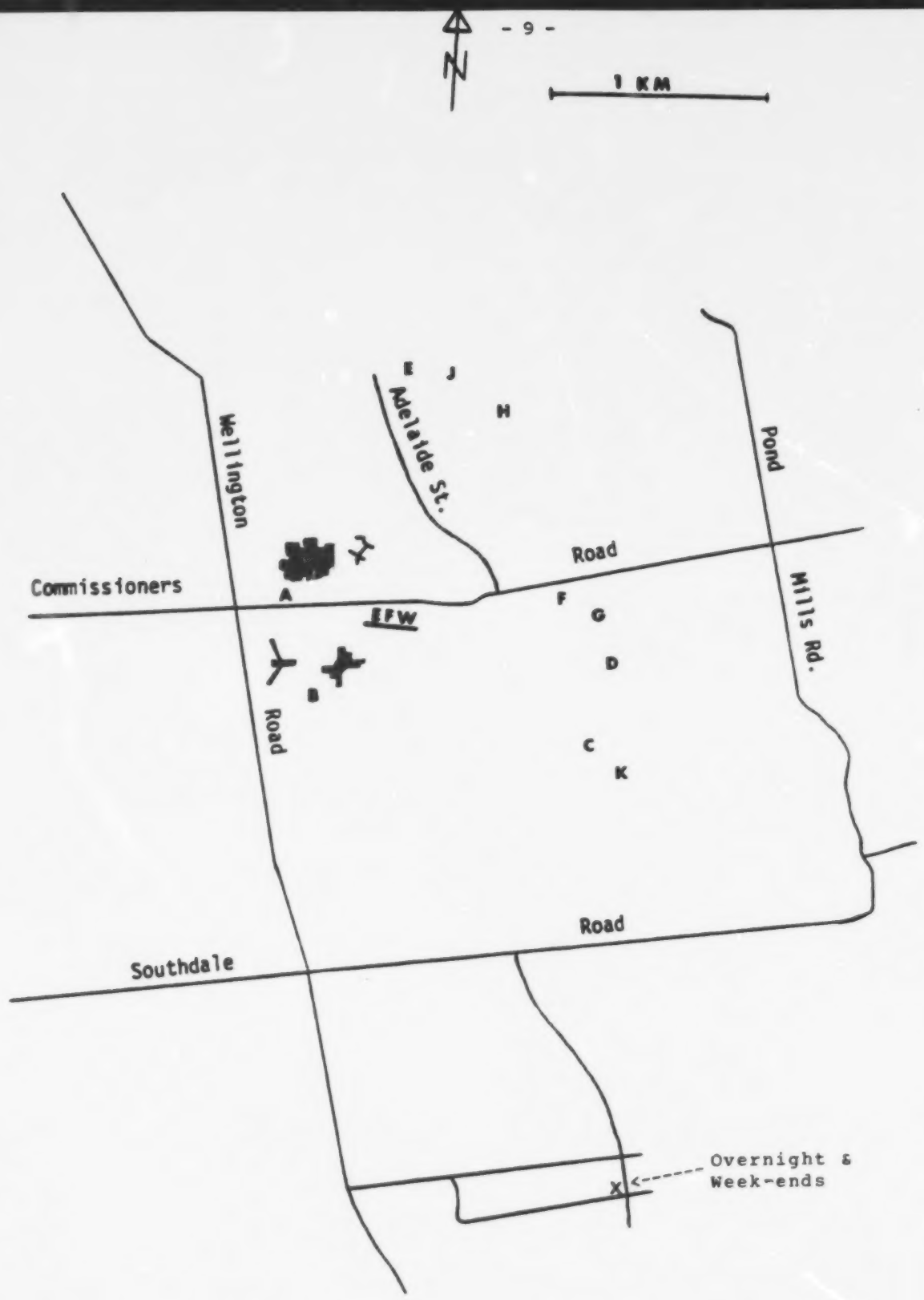


Figure 3.1 Monitoring Locations in Table 4

TABLE 5

Results Summary - Maximum 1-hr Average Concentration (ppm, except as noted)

Monitoring Period #	SO_2	CO	NO_2	Hg (ug/m^3)	THC	TOC** (ug/m^3)	upwind or downwind
A011*	-	0.54	0.06	-	2.1	140	background
B012	0.005	5.91	0.02	-	0.8	118,96	DW
A031	-	1.14	0.07	-	3.6	431,320,132,137	DW
A032	-	0.93	0.05	-	2.7	177	DW
B033	0.010	1.79	0.02	0.011	2.1	148,120	DW
B034	0.005	1.60	0.02	0.010	1.2	433	UW(traffic)
A042	-	0.47	0.04	-	2.4	208,40	DW
B042	0.005	2.75	0.02	0.022	1.4	271,109	DW
A102	0.024	0.47	0.04	-	2.3	158,130	DW
B102	0.022	2.14	0.02	0.005	1.1	266,102,111	DW
A103	0.020	1.86	0.06	-	2.6	304	UW
A112	0.005	0.31	0.04	-	1.4	128,153,24	DW
B112	0.005	2.46	0.02	0.005	1.1	431,113,90	DW
A113	0.005	0.54	0.03	-	1.6	98,20	background
B113	0.005	1.27	0.03	0.005	1.2	88	UW
A122	0.005	0.27	0.02	-	1.8	40	DW
B122	0.005	2.22	0.01	0.005	3.2	391,83	DW

* A refers to MAMU #1
B refers to MAMU #2
** This list contains all of the TOC results from the gas chromatograph.
\- Not monitored.

overnight, weekends at 985 Adelaide St. South	SO_2	CO	NO_2	Hg	THC	TOC
arithmetic mean	0.006	0.57	0.03	-	1.4	-
maximum 1-hr average	0.027	1.94	0.09	-	2.4	-
Ontario Air Quality Criterion	0.25 (1-hr)	30 (1-hr)	0.20 (1-hr)	2.0 (24-hr)	-	-

Table 6

Characteristics of the Common Contaminants as Measured Continuously by MAMu's #1 and #2

All concentrations are in terms of ppm (parts per million)

	Detection Limits	Standards, Guidelines or Provisional Guidelines (1/2-hr)		Criterion (1-hr)	TWA	STEL			Alternate Names
1 SULPHUR DIOXIDE	0.005	0.300	(1)	0.25	2	5		SO2	SULFUR DIOXIDE
2 TOTAL REDUCED SULPHUR	0.005	0.027	* (3)	0.027	10	15	**	TRS	
3 NITROGEN OXIDES	0.01	0.25	*** (1)	N/A	-	-		NOx	OXIDES of NITROGEN
4 NITROGEN DIOXIDE	0.01	N/A		0.20	5	5		NO2	
5 NITRIC OXIDE	0.01	N/A		N/A	25	35		NO	NITROGEN MONOXIDE
6 OZONE	0.01	0.1	(1)	0.08	0.1	0.3		O3	
7 CARBON MONOXIDE	0.1	5.0	(1)	30.0	50	400		CO	

* As equivalent H2S and applicable only for Kraft Pulp Mills
TRS may contain any of the following: Hydrogen Sulphide (H2S), Methyl Mercaptan (CH3SH), Dimethyl Sulphide (C2H6S) and Dimethyl Disulphide (C2H6S2).

** The TWA and STEL for TRS is expressed solely for Hydrogen Sulphide concentrations

*** Expressed as NO2

(1) Standard
(2) Guideline
(3) Provisional Guideline

TWA - Time Weighted Average for a normal 8-hour workday and a 40-hour workweek, to which nearly all workers may be repeatedly exposed without adverse effect.

STEL - Short Term Exposure Limit - concentration to which workers can be exposed for a short period of time (15 minutes) without adverse effect.

TABLE 7
MEASURED BY THE GAS CHROMATOGRAPHIC SYSTEMS OF MAMUs #1 and #2
ALL CONCENTRATIONS ARE IN TERMS OF ug/m^3 (micrograma per cubic metre)

		Standards, Guidelines or Provisional Guidelines (1/2 - hr)	Criterion	TWA	STEL	Alternate Names
1	PROPANE					
2	PROPADIENE					ALLENE
3	PROPYNE					METHYL ACETYLENE
4	CHLOROMETHANE	20000 (2)	7000 (A)	105000	205000	METHYL CHLORIDE
5	CYCLOPROPANE					
6	2-METHYLPROPANE					ISOBUTANE
7	CHLOROETHENE	560 (2)	280 (A)	5000	10000	VINYL CHLORIDE; CHLOROETHYLENE
8	2-CHLORO-2METHYLPROPANE					
9	1-BUTENE					
10	1,3-BUTADIENE					
11	BUTANE			1900000		*n-BUTANE*
12	1-BUTYNE					ETHYLACETYLENE
13	CHLOROETHANE			2600000	3250000	ETHYL CHLORIDE
14	3-METHYL-1-BUTENE					ISOAMYLENE
15	2-METHYLBUTANE					ISOPENTANE
16	2-METHYL-1-BUTENE					
17	PENTANE			1800000	2250000	*N-PENTANE*
18	2-METHYL-1,3-BUTADIENE					ISOPRENE
19	trans-2-PENTENE					
20	cis-2-PENTENE					
21	DICHLOROMETHANE	100000 (1)	100000 (B)	350000	1740000	METHYLENE CHLORIDE
22	2-METHYL-2-BUTENE					
23	2,2-DIMETHYLBUTANE					NEOHEXANE
24	trans-1,2-DICHLOROETHENE					
25	3-METHYL-1-PENTENE					
26	4-METHYL-1-PENTENE					
27	CYCLOPENTANE					
28	2,3-DIMETHYLBUTANE					
29	2-METHYLPENTANE					
30	3-METHYLPENTANE					
31	1-HEXENE					
32	cis-1,2-DICHLOROETHENE			790000	1000000	cis-1,2-DICHLOROETHYLENE; SYM-DICHLOROETHYLENE
33	2-CHLOROBUTANE					sec-BUTYL CHLORIDE

Table 7 (cont.)

	Standards, Guidelines or Provisional Guidelines (1/2 - hr)	Criterion	TWA	STEL	Alternate Names
34 1-CHLORO-2-METHYLPROPANE					
35 HEXANE	35000 (2)	12000 (A)	180000		*n-HEXANE*
36 CHLOROFORM	1500 (2)	500 (A)	50000	225000	TRICHLOROMETHANE
37 trans-3-HEXENE					
38 3-CHLORO-2-METHYLPROPENE					ISOBUTENYL CHLORIDE
39 METHYLCYCLOPENTANE					
40 2,4-DIMETHYLPENTANE					
41 1,2-DICHLOROETHANE			40000	60000	ETHYLENE CHLORIDE
42 2,2-DIMETHYLPENTANE					
43 2,2,3-TRIMETHYLBUTANE					
44 1,1,1-TRICHLOROETHANE	350000 (1)	115000 (A)	19000000	2450000	METHYL CHLOROFORM
45 1-CHLOROBUTANE					n-BUTYL CHLORIDE
46 BENZENE	10000 (1)	3300 (A)	30000	75000	
47 TETRACHLOROMETHANE	1800 (2)	600 (A)	20000	125000	CARBON TETRACHLORIDE
48 3,3-DIMETHYLPENTANE					
49 CYCLOHEXANE	300000 (2)	100000 (A)	1050000	1300000	HEXAHYDROBENZENE
50 2,3-DIMETHYLPENTANE					
51 2-METHYLHEXANE					ISOHEPTANE
52 CYCLOHEXENE			1015000		
53 DIBROMOMETHANE					METHYLENE DIBROMIDE; METHYLENE BROMIDE
54 1,2-DICHLOROPROPANE					PROPYLENE CHLORIDE
55 3-METHYLHEXANE					
56 2,3-DICHLOROPROPENE			5000	50000	2,3-DICHLOROPROPYLENE
57 TRICHLOROETHENE	85000 (1)	28000 (A)	270000	1080000	TRICHLOROETHYLENE
58 2,2,4-TRIMETHYLPENTANE					ISOOCTANE
59 1-HEPTENE					
60 HEPTANE			1600000	2000000	*n-HEPTANE*
61 trans-2-HEPTENE					
62 METHYLCYCLOHEXANE			1600000	2000000	HEXAHYDROTOLUENE
63 2,2-DIMETHYLHEXANE					
64 ETHYLCYCLOPENTANE					
65 4-METHYLCYCLOHEXENE					
66 2,5-DIMETHYLHEXANE					

Table 7 (cont.)

	Standards, Guidelines or Provisional Guidelines (1/2 - hr)	Criterion	TWA	STEL	Alternate Names
67 1-CHLOROPENTANE					n-AMYL CHLORIDE; PENTYL CHLORIDE
68 1,1,2-TRICHLOROETHANE					VINYL TRICHLORIDE
69 2,3,4-TRIMETHYLPENTANE					
70 TOLUENE	2000 (1)	2000 (A)	375000	560000	*METHYLBENZENE*; PHENYLMETHANE
71 1,3-DICHLOROPROPANE			350000	510000	TRIMETHYLENE CHLORIDE
72 2-METHYLHEPTANE					
73 4-METHYLHEPTANE					
74 c-1,3-DIMETHYLCYCLOHEXANE					
75 3-METHYLHEPTANE					ETHYLENE DIBROMIDE; ETHYLENE BROMIDE
76 1,2-DIBROMOETHANE					
77 1,1-DIMETHYLCYCLOHEXANE	150000 (3)	50000 (A)			*trans-1,2-DIMETHYLCYCLOHEXANE
78 1-OCTENE					
79 trans12DIMETHYLCYCLOHEXANE					TETRACHLOROETHYLENE; PERCHLOROETHYLENE
80 trans-4-OCTENE	10000 (2)	4000 (A)	335000	1340000	
81 TETRACHLOROETHENE					*n-OCTANE*
82 c-1,4-DIMETHYLCYCLOHEXANE	45400 (3)	15300 (A)	1450000	1800000	
83 OCTANE					
84 trans-2-OCTENE					PHENYL CHLORIDE
85 cis12DIMETHYLCYCLOHEXANE			350000		
86 CHLOROBENZENE					n-HEXYL CHLORIDE
87 ETHYLCYCLOHEXANE					
88 1-CHLOROHEXANE	4000 (1)	4000 (B)	435000	545000	*1,3-DIMETHYLBENZENE*
89 ETHYLBENZENE	2300 (4)	2300 (A)	435000	655000	*1,4-DIMETHYLBENZENE*
90 m-XYLENE	2300 (4)	2300 (A)	435000	655000	
91 p-XYLENE					
92 4-METHYLOCTANE					
93 2-METHYLOCTANE					
94 3-METHYLOCTANE	400 (1)	400 (A)	215000	425000	*ETHENYLBENZENE*; PHENYLETHYLENE; VINYLBENZENE
95 STYRENE					
96 1,4-DICHLOROBUTANE	2300 (4)	2300 (A)	435000	655000	*1,2-DIMETHYLBENZENE*
97 o-XYLENE					ACETYLENE TETRACHLORIDE
98 1,1,2,2-TETRACHLOROETHANE			300000	450000	TRICHLOROHYDRIN
99 1,2,3-TRICHLOROPROPANE					

Table 7 (cont.)

	Standards, Guidelines or Provisional Guidelines (1/2 - hr)	Criterion	TWA	STEL	Alternate Names
100 1-NONENE					
101 trans-1,4-DICL-2-BUTENE					
102 NONANE			1050000	1300000	*n-NONANE*
103 ISOPROPYLBENZENE	100 (3)	100 (B)			*(1-METHYLETHYL)BENZENE*; CUMENE
104 2-CHLOROTOLUENE					*2-CHLORO-1-METHYLBENZENE*; o-TOLYL CHLORIDE; o-CHLOROTOLUENE
105 3-CHLOROTOLUENE					*3-CHLORO-1-METHYLBENZENE*; m-TOLYL CHLORIDE; m-CHLOROTOLUENE
106 4-CHLOROTOLUENE					*4-CHLORO-1-METHYLBENZENE; p-TOLYL CHLORIDE; p-CHLOROTOLUENE
107 PROPYLBENZENE					n-PROPYLBENZENE
108 3-ETHYLTOLUENE					*1-ETHYL-3-METHYLBENZENE*; M-ETHYLTOLUENE
109 4-ETHYLTOLUENE					*1-ETHYL-4-METHYLBENZENE*; P-ETHYLTOLUENE
110 1,3,5-TRIMETHYLBENZENE			125000	170000	MESITYLENE
111 2-ETHYLTOLUENE					*1-ETHYL-2-METHYLBENZENE*; O-ETHYLTOLUENE
112 1,2,4-TRIMETHYLBENZENE	100 (2)	1000 (A)	125000	170000	PSUEDOCUMENE
113 tert.BUTYLBENZENE					*(1,1-DIMETHYLETHYL)BENZENE*
114 tert.BUTYLCYCLOHEXANE					
115 1,3-DICHLOROBENZENE					
116 1-DECENE	100000 (3)	60000 (A)			n-DECYLENE
117 (CHLOROMETHYL)BENZENE					alpha-CHLOROTOLUENE; BENZYL CHLORIDE
118 1,5-DICHLOROPENTANE					
119 isoBUTYLBENZENE					
120 DECANE					*n-DECANE*
121 sec.BUTYLBENZENE					*(1-METHYLPROPYL)BENZENE*
122 3-(CHLOROMETHYL)HEPTANE					
123 1,2,3-TRIMETHYLBENZENE			125000	175000	HEMIMELLITENE
124 1ISOPROPYL4METHYLBENZENE					*METHYL(4-METHYLETHYL)BENZENE*; 3-ISOPROPYLTOLUENE; P-CYMENE
125 1,2-DICHLOROBENZENE					o-DICHLOROBENZENE
126 INDAN					*2,3-DIHYDRO-1H-INDENE*; 2,3-DIHYDROINDENE; HYDRINDENE
127 BUTYLCYCLOHEXANE					n-BUTYLCYCLOHEXANE; 1-CYCLOHEXYLBUTANE
128 1,3-DIETHYLBENZENE					m-DIETHYLBENZENE
129 1,4-DIETHYLBENZENE					p-DIETHYLBENZENE
130 BUTYLBENZENE					n-BUTYLBENZENE
131 1,2-DIETHYLBENZENE					o-DIETHYLBENZENE
132 transDECAHYDRONAPHTHALENE					t-DECALIN; BICYCLO[4,4,0]DECANE

Table 7 (cont.)

		Standards, Guidelines or Provisional Guidelines (1/2 - hr)	Criterion	TWA	STEL	Alternate Names
133	cis-DECAHYDRONAPHTHALENE					c-DECALIN; BICYCLO[4,4,0]DECANE
134	UNDECANE					*n-UNDECANE*; HENDECANE
135	1235-TETRAMETHYLBENZENE					ISODURENE
136	1234-TETRAMETHYLBENZENE					PREHNITENE
137	1,3-DIISOPROPYLBENZENE					*1,3-BIS(1-METHYLETHYL)BENZENE*
138	1234TETRAHYDRONAPHTHALENE					TETRALIN
139	1,4-DIISOPROPYLBENZENE					*1,4-BIS(1-METHYLETHYL)BENZENE*; ISOPROPYLCUMENE
140	NAPHTHALENE	36 (3)	22.5 (A)			
141	DODECANE					*n-DODECANE*

NOTES: (1) Standard
(2) Guideline
(3) Provisional Guideline
(4) Standard for the sum of o-, m-, & p- Xylenes

(A) Ambient Air Quality Criterion based on a 24-hour average concentration
(B) Ambient Air Quality Criterion based on a 1-hour average concentration
(please note; if the maximum 1-hour average concentration of a contaminant is LESS than the Criterion concentration based on a 24-hour average, then that Criterion has NOT been exceeded.)

TWA - Time Weighted Average for a normal 8-hour workday and a 40-hour workweek, to which nearly all workers may be repeatedly exposed without adverse effect.

STEL - Short Term Exposure Limit - concentration to which workers can be exposed for a short period of time (15 minutes) without adverse effect.

* - Denotes name approved by the International Union of Pure and Applied Chemistry (IUPAC).

APPENDIX A

Common Pollutants - Complete Data Set

1-hour average concentrations,
all units parts per million (ppm)
except mercury (Hg) - ug/m^3

LONDON_86 : A011 (MAMU 1)

Start: 86/12/01 14:31 Scan: 60 sec
Average: 60.00 min Report: 30.00 min
Loc: PKG LOT @ MAIN ENTRANCE VICTORIA HOSPITAL

Time	CO	TRS	THC	Non-CH4	Methane	NO2	NO	Ozone	Temp	Wind-Spd	Wind-Dir
14:31-15:31	.4	nd	2.09	.49	1.63	.06	.03	.016	-.5	39.	74.
15:01-16:01	.4	nd	2.03	.62	1.43	.05	.03	.015	-.7	39.	74.
15:31-16:31	.5	nd	1.93	.67	1.28	.06	.03	.013	-.8	37.	74.

LONDON_86 : A011

Statistics	CO	TRS	THC	Non-CH4	Methane	NO2	NO	Ozone	Temp	Wind-Spd	Wind-Dir
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	d C	km/h	deg
Arith. Mean	.48	.0013	2.011	.580	1.451	.057	.028	.015	-.7	-	-
Std. Dev.	.23	.0006	.116	.127	.210	.007	.009	.002	.2	-	-
Geo. Mean	.43	.0012	2.007	.566	1.436	.057	.026	.014	-	-	-
Geo.Std.Dev	1.73	1.4215	1.059	1.262	1.153	1.136	1.387	1.176	-	-	-
Min Reading	.05	.0010	1.828	.256	1.212	.041	.010	.009	-1.8	23.7	40.0
Max Reading	1.39	.0026	2.455	.823	1.713	.078	.056	.021	-.2	51.6	91.2
Min Average	.41	.0012	1.927	.489	1.273	.053	.027	.013	-.8	37.1	73.7
Max Average	.54	.0015	2.096	.676	1.630	.059	.029	.016	-.5	39.8	74.6
# Valid Rdgs	121.	121.	121.	121.	121.	121.	121.	121.	121.	121.	121.
Min.Det.Lev	.10	.0020	.100	.100	.100	.010	.010	.004	-	-	-
1 hr Crit.	30.00	.0270	-	-	-	.200	-	.080	-	-	-

- Invalid Data / Not Calculated
nd Average is less than Min. Detectable Level
m One or more readings Missing
* Average is above Provincial Std/Criteria

Percent Valid Data Required for Valid Average: 90.0 %
Averaging Started at Nearest: .0 min
Averages updated every SCAN time

LONDON_86 : A031 (MAMU 1)

Start: 86/12/03 09:56 Scan: 60 sec
Average: 60.00 min Report: 30.00 min
Loc: 53 PARLIAMENT

Time	CO	TRS	THC	Non-CH4	Methane	NO2	NO	Ozone	Temp	Wind-Spd	Wind-Dir
09:56-10:56	1.0	nd	3.51	1.31	2.20	.07	.03	nd	3.3	20.	294.
10:26-11:26	.9	nd	3.61	1.41	2.20	.05	.02	nd	2.8	19.	294.
10:56-11:56	.9	nd	3.50	1.46	2.04	.04	.02	nd	2.5	17.	290.
11:26-12:26	.9	nd	3.00	1.31	1.68	.04	.02	nd	2.4	16.	281.
11:56-12:56	.7	nd	2.71	1.27	1.42	.04	.02	.005	2.5	16.	274.
12:26-13:26	.9	nd	2.79	1.37	1.41	.04	.01	.007	3.0	16.	271.
12:56-13:56	1.1	nd	2.50	1.43	1.48	.04	.01	.008	2.9	15.	265.

LONDON_86 : A031

Statistics	CO	TRS	THC	Non-CH4	Methane	NO2	NO	Ozone	Temp	Wind-Spd	Wind-Dir
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	d C	km/h	deg
Arith. Mean	.93	.0011	3.056	1.368	1.787	.049	.021	.004	2.8	-	-
Std. Dev.	.72	.0004	1.059	.848	.418	.017	.011	.003	.5	-	-
Geo. Mean	.81	.0011	2.525	1.154	1.741	.047	.019	.004	-	-	-
Geo.Std.Dev	1.58	1.2932	2.608	2.191	1.250	1.329	1.643	1.829	-	-	-
Min Reading	.29	.0010	.050	.050	1.343	.025	.005	.002	2.0	5.8	232.3
Max Reading	7.57	.0031	10.212	10.838	3.036	.121	.054	.044	4.0	37.5	310.7
Min Average	.72	.0010	2.187	1.084	1.399	.039	.014	.002	2.4	14.3	264.6
Max Average	1.14	.0013	3.620	1.475	2.225	.071	.033	.008	3.3	20.3	295.7
# Valid Rdgs	240.	240.	240.	240.	240.	240.	240.	240.	240.	240.	240.
Min.Det.Lev	.10	.0020	.100	.100	.100	.010	.010	.004	-	-	-
1 hr Crit.	30.00	.0270	-	-	-	.200	-	.080	-	-	-

- Invalid Data / Not Calculated
nd Average is less than Min. Detectable Level
m One or more readings Missing
* Average is above Provincial Std/Criteria

Percent Valid Data Required for Valid Average: 90.0 %
Averaging Started at Nearest: .0 min
Averages updated every SCAN time

LONDON_86 : A032 (MAMU 1)

Start: 86/12/03 14:23 Scan: 60 sec
Average: 60.00 min Report: 30.00 min
Loc: THOMSON RD NEAR SCHOOL

Time	CO	TRS	THC	Non-CH4	Methane	NO2	NO	Ozone	Temp	Wind-Spd	Wind-Dir
14:23-15:23	.9	nd	2.67	1.29	1.35	.05	.02	.007	2.7	11.	246.

LONDON_86 : A032

Statistics	CO	TRS	THC	Non-CH4	Methane	NO2	NO	Ozone	Temp	Wind-Spd	Wind-Dir
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	d C	km/h	deg
Arith. Mean	.92	.0010	2.667	1.293	1.353	.052	.021	.006	2.5	-	-
Std. Dev.	.60	.0000	.095	.086	.009	.007	.006	.002	.4	-	-
Geo. Mean	.85	.0010	2.665	1.290	1.353	.052	.020	.006	-	-	-
Geo.Std.Dev	1.38	1.0000	1.035	1.064	1.007	1.150	1.319	1.300	-	-	-
Min Reading	.57	.0010	2.558	1.195	1.327	.040	.010	.002	1.5	2.9	215.2
Max Reading	5.21	.0010	3.097	1.647	1.389	.073	.039	.010	2.9	28.6	275.1
Min Average	.92	.0010	2.666	1.292	1.353	.051	.019	.007	2.5	10.7	245.4
Max Average	.94	.0010	2.672	1.298	1.354	.053	.020	.007	2.7	11.9	248.2
# Valid Rdgs	70.	70.	70.	70.	70.	70.	70.	70.	70.	70.	70.
Min.Det.Lev	.10	.0020	.100	.100	.100	.010	.010	.004	-	-	-
1 hr Crit.	30.00	.0270	-	-	-	.200	-	.080	-	-	-

- Invalid Data / Not Calculated
nd Average is less than Min. Detectable Level
m One or more readings Missing
* Average is above Provincial Std/Criteria

Percent Valid Data Required for Valid Average: 90.0 %
Averaging Started at Nearest: .0 min
Averages updated every SCAN time

LONDON_86 : A042 (MAMU 1)

Start: 86/12/04 11:58 Scan: 60 sec
Average: 60.00 min Report: 30.00 min
Loc: BRISTOL APTS @ COMMISSIONERS RD

Time	CO	TRS	THC	Non-CH4	Methane	NO2	NO	Ozone	Temp	Wind-Spd	Wind-Dir
11:58-12:58	.2	nd	2.24	1.02	1.21	.02	.01	.017	.4	35.	243.
12:28-13:28	.2	nd	2.36	1.12	1.22	.02	.01	.016	.3	32.	243.
12:58-13:58	.4	nd	2.34	1.11	1.21	.03	.02	.015	-.6	22.	250.
13:28-14:28	.5	nd	2.28	1.06	1.19	.04	.03	.013	-1.1	15.	263.

LONDON_86 : A042

Statistics	CO	TRS	THC	Non-CH4	Methane	NO2	NO	Ozone	Temp	Wind-Spd	Wind-Dir
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	d C	km/h	deg
Arith. Mean	.30	.0010	2.269	1.051	1.201	.031	.022	.015	-.4	-	-
Std. Dev.	.21	.0002	.095	.078	.022	.009	.011	.003	.8	-	-
Geo. Mean	.21	.0010	2.267	1.049	1.201	.030	.020	.015	-	-	-
Geo.Std.Dev	2.47	1.1464	1.043	1.077	1.019	1.355	1.714	1.204	-	-	-
Min Reading	.05	.0010	2.077	.882	1.162	.013	.005	.008	-1.6	6.1	227.1
Max Reading	1.19	.0022	2.583	1.276	1.286	.060	.053	.020	.7	54.0	319.8
Min Average	.15	.0010	2.224	1.021	1.187	.022	.014	.013	-1.2	14.6	242.4
Max Average	.47	.0011	2.368	1.133	1.219	.041	.034	.017	.4	35.2	263.0
# Valid Rdgs	178.	178.	178.	178.	178.	178.	178.	178.	178.	178.	178.
Min.Det.Lev	.10	.0020	.100	.100	.100	.010	.010	.004	-	-	-
1 hr Crit.	30.00	.0270	-	-	-	.200	-	.080	-	-	-

- Invalid Data / Not Calculated
nd Average is less than Min. Detectable Level
m One or more readings Missing
* Average is above Provincial Std/Criteria

Percent Valid Data Required for Valid Average: 90.0 %
Averaging Started at Nearest: .0 min
Averages updated every SCAN time

LONDON_86 : A102 (MAMU 1)

Start: 86/12/10 10:33 Scan: 60 sec
Average: 60.00 min Report: 30.00 min
Loc: BRISTOL APTS @COMMISSIONERS RD

Time	CO	THC	SO2	Non-CH4	Methane	NO2	NO	Ozone	Temp	Wind-Spd	Wind-Dir
10:33-11:33	.3	1.59	nd	.49	1.10	.04	.03	.016	-5.4	22.	253.
11:03-12:03	.3	1.69	nd	.58	1.11	.03	.02	.016	-5.3	25.	248.
11:33-12:33	.4	1.82	nd	.70	1.11	.03	.02	.016	-5.0	26.	250.
12:03-13:03	.5	1.97	.01	.83	1.13	.03	.03	.015	-4.5	23.	254.
12:33-13:33	.4	2.12	.02	.97	1.13	.03	.03	.014	-3.9	24.	252.
13:03-14:03	.3	2.22	.02	1.06	1.14	.03	.02	.015	-3.8	26.	246.

LONDON_86 : A102

Statistics	CO	THC	SO2	Non-CH4	Methane	NO2	NO	Ozone	Temp	Wind-Spd	Wind-Dir
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	d C	km/h	deg
Arith. Mean	.35	1.942	.013	.810	1.125	.033	.025	.015	-4.6	-	-
Std. Dev.	.23	.275	.009	.243	.028	.006	.006	.002	.8	-	-
Geo. Mean	.28	1.922	.010	.771	1.125	.033	.024	.015	-	-	-
Geo.Std.Dev	2.03	1.155	2.073	1.381	1.025	1.181	1.298	1.143	-	-	-
Min Reading	.05	1.480	.005	.415	1.075	.020	.010	.010	-5.8	8.7	223.9
Max Reading	1.62	2.389	.027	1.188	1.216	.052	.045	.025	-2.7	46.7	295.3
Min Average	.26	1.592	.005	.495	1.103	.029	.022	.014	-5.4	22.3	244.4
Max Average	.48	2.279	.024	1.105	1.154	.037	.028	.016	-3.7	26.8	255.7
# Valid Rdgs	233.	233.	233.	233.	233.	233.	233.	233.	233.	233.	233.
Min.Det.Lev	.10	.100	.010	.100	.100	.010	.010	.004	-	-	-
1 hr Crit.	30.00	-	.250	-	-	.200	-	.080	-	-	-

- Invalid Data / Not Calculated
nd Average is less than Min. Detectable Level
m One or more readings Missing
* Average is above Provincial Std/Criteria

Percent Valid Data Required for Valid Average: 90.0 %
Averaging Started at Nearest: .0 min
Averages updated every SCAN time

LONDON_86 : A103 (MAMU 1)

Start: 86/12/10 14:53 Scan: 60 sec
Average: 60.00 min Report: 30.00 min
Loc: PKG LOT @ MAIN ENTRANCE VICTORIAHOSPITAL

Time	CO	THC	SO2	Non-CH4	Methane	NO2	NO	Ozone	Temp	Wind-Spd	Wind-Dir
14:53-15:53	1.3	2.53	.02	1.38	1.12	.05	.06	.011	-3.4	26.	264.
15:23-16:23	1.6	2.50	.01	1.35	1.12	.05	.07	.010	-3.9	22.	264.

LONDON_86 : A103

Statistics	CO	THC	SO2	Non-CH4	Methane	NO2	NO	Ozone	Temp	Wind-Spd	Wind-Dir
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	d C	km/h	deg
Arith. Mean	1.63	2.470	.013	1.326	1.120	.057	.070	.010	-4.1	-	-
Std. Dev.	.78	.153	.008	.137	.014	.010	.023	.003	.8	-	-
Geo. Mean	1.45	2.465	.010	1.319	1.120	.056	.067	.009	-	-	-
Geo.Std.Dev	1.66	1.064	2.032	1.110	1.012	1.188	1.402	1.381	-	-	-
Min Reading	.25	2.077	.005	.977	1.086	.039	.027	.002	-5.3	9.1	243.6
Max Reading	4.22	2.813	.026	1.644	1.147	.078	.130	.016	-2.9	41.1	288.8
Min Average	1.27	2.423	.006	1.286	1.117	.050	.057	.008	-4.6	18.8	261.1
Max Average	1.94	2.559	.020	1.403	1.129	.062	.083	.011	-3.4	26.3	264.7
# Valid Rdgs	111.	111.	111.	111.	111.	111.	111.	111.	111.	111.	111.
Min.Det.Lev	.10	.100	.010	.100	.100	.010	.010	.004	-	-	-
1 hr Crit.	30.00	-	.250	-	-	.200	-	.080	-	-	-

- Invalid Data / Not Calculated
nd Average is less than Min. Detectable Level
n One or more readings Missing
* Average is above Provincial Std/Criteria

Percent Valid Data Required for Valid Average: 90.0 %
Averaging Started at Nearest: .0 min
Averages updated every SCAN time

LONDON_86 : A112 (MAMU 1)

Start: 86/12/11 11:03 Scan: 60 sec
Average: 60.00 min Report: 30.00 min
Loc: CORNER GLADSTONE AVE/DIEPPE ST

Time	CO	THC	SO2	Non-CH4	Methane	NO2	NO	Ozone	Temp	Wind-Spd	Wind-Dir
11:03-12:03	.3	∮	nd	∮	1.10	.04	.02	.016	-2.3	22.	210.
11:33-12:33	.3	∮	nd	∮	1.02	.03	.02	.018	-1.5	25.	213.
12:03-13:03	.3	∮	nd	∮	.99	.03	.02	.018	-.8	26.	213.
12:33-13:33	.3	∮	nd	∮	.96	.03	.02	.018	-.6	30.	211.
13:03-14:03	.3	∮	nd	∮	.96	.03	.01	.019	-.6	34.	208.
13:33-14:33	.3	∮	nd	∮	.97	.02	.01	.019	-.8	37.	206.
14:03-15:03	.3	∮	nd	∮	.97	.03	.01	.018	-1.2	36.	207.

LONDON_86 : A112

Statistics	CO	THC	SO2	Non-CH4	Methane	NO2	NO	Ozone	Temp	Wind-Spd	Wind-Dir
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	d C	km/h	deg
Arith. Mean	.29	-	.005	-	1.004	.030	.017	.018	-1.2	-	-
Std. Dev.	.13	-	.000	-	.068	.010	.005	.002	.8	-	-
Geo. Mean	.27	-	.005	-	1.002	.029	.016	.017	-	-	-
Geo.Std.Dev	1.63	-	1.000	-	1.066	1.338	1.475	1.106	-	-	-
Min Reading	.05	-	.005	-	.933	.013	.005	.013	-2.9	6.8	178.9
Max Reading	.92	-	.005	-	1.218	.075	.029	.020	-.0	51.6	228.5
Min Average	.26	-	.005	-	.957	.024	.014	.016	-2.3	22.4	205.0
Max Average	.31	-	.005	-	1.097	.040	.019	.019	-.5	37.6	216.6
∮ Valid Rdgs	242.	242.	242.	242.	242.	242.	242.	242.	242.	242.	242.
Min.Det.Lev	.10	.100	.010	.100	.100	.010	.010	.004	-	-	-
1 hr Crit.	30.00	-	.250	-	-	.200	-	.080	-	-	-

- Invalid Data / Not Calculated
nd Average is less than Min. Detectable Level
m One or more readings Missing
* Average is above Provincial Std/Criteria
∮ Instrument malfunction / Data not collected

Percent Valid Data Required for Valid Average: 90.0 %
Averaging Started at Nearest: .0 min
Averages updated every SCAN time

LONDON_86 : A113 (MAMU 1)

Start: 86/12/11 15:24 Scan: 60 sec
Average: 60.00 min Report: 30.00 min
Loc: BRISTOL APTS./COMMISSIONERS RD

Time	CO	THC	SO2	Non-CH4	Methane	NO2	NO	Ozone	Temp	Wind-Spd	Wind-Dir
15:24-16:24	.5	1.49	nd	nd	1.47	.03	.01	.016	-2.2	30.	204.

LONDON_86 : A113

Statistics	CO	THC	SO2	Non-CH4	Methane	NO2	NO	Ozone	Temp	Wind-Spd	Wind-Dir
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	d C	km/h	deg
Arith. Mean	.55	1.534	.005	.099	1.497	.036	.013	.015	-2.3	-	-
Std. Dev.	.31	.319	.000	.084	.203	.008	.005	.002	.2	-	-
Geo. Mean	.48	1.503	.005	.076	1.484	.035	.012	.014	-	-	-
Geo.Std.Dev	1.65	1.221	1.000	1.934	1.139	1.244	1.589	1.184	-	-	-
Min Reading	.12	.986	.005	.050	1.157	.022	.005	.009	-3.2	7.8	192.7
Max Reading	2.18	2.432	.005	.351	2.097	.064	.023	.017	-2.0	43.0	220.8
Min Average	.47	1.481	.005	.084	1.469	.033	.012	.014	-2.3	24.8	204.1
Max Average	.57	1.603	.005	.115	1.538	.037	.014	.016	-2.2	30.1	206.9
# Valid Rdgs	81.	81.	81.	81.	81.	81.	81.	81.	81.	81.	81.
Min.Det.Lev	.10	.100	.010	.100	.100	.010	.010	.004	-	-	-
1 hr Crit.	30.00	-	.250	-	-	.200	-	.080	-	-	-

- Invalid Data / Not Calculated
nd Average is less than Min. Detectable Level
m One or more readings Missing
* Average is above Provincial Std/Criteria

Percent Valid Data Required for Valid Average: 90.0 %
Averaging Started at Nearest: .0 min
Averages updated every SCAN time

LONDON_86 : A122 (MAMU 1)

Start: 86/12/12 10:45 Scan: 60 sec
Average: 60.00 min Report: 30.00 min
Loc: CORNER PARLIAMENT CR./MILLBANK

Time	CO	THC	SO2	Non-CH4	Methane	NO2	NO	Ozone	Temp	Wind-Spd	Wind-Dir
10:45-11:45	.3	1.77	nd	.65	1.18	.02	nd	.026	.7	18.	289.

LONDON_86 : A122

Statistics	CO	THC	SO2	Non-CH4	Methane	NO2	NO	Ozone	Temp	Wind-Spd	Wind-Dir
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	d C	km/h	deg
Arith. Mean	.28	1.768	.005	.657	1.162	.023	.009	.026	.4	-	-
Std. Dev.	.34	.327	.000	.128	.127	.005	.005	.001	1.1	-	-
Geo. Mean	.21	1.680	.005	.625	1.155	.022	.008	.026	-	-	-
Geo.Std.Dev	1.83	1.592	1.000	1.544	1.106	1.335	1.652	1.042	-	-	-
Min Reading	.05	.050	.005	.050	.906	.005	.005	.024	-1.8	3.7	259.9
Max Reading	2.22	2.612	.005	.970	1.665	.039	.021	.029	1.8	32.5	318.5
Min Average	.21	1.767	.005	.649	1.168	.021	.008	.026	.3	16.9	287.0
Max Average	.29	1.832	.005	.685	1.183	.023	.009	.027	.7	18.5	289.9
# Valid Rdgs	75.	75.	75.	75.	75.	75.	75.	75.	75.	75.	75.
Min.Det.Lev	.10	.100	.010	.100	.100	.010	.010	.004	-	-	-
1 hr Crit.	30.00	-	.250	-	-	.200	-	.080	-	-	-

- Invalid Data / Not Calculated
nd Average is less than Min. Detectable Level
m One or more readings Missing
* Average is above Provincial Std/Criteria

Percent Valid Data Required for Valid Average: 90.0 %
Averaging Started at Nearest: .0 min
Averages updated every SCAN time

LONDON_86 : B012 (MAMU 2)

Start: 86/12/01 14:40 Scan: 60 sec
Average: 60.00 min Report: 30.00 min
Loc: NW CORNER VICTORIA HOSPITAL

Time	CO	TRS	THC	SO2	Non-CH4	Methane	NOx	NO2	NO	Ozone	Temp	Wind-Spd	Wind-Dir
14:40-15:40	5.8	.003	.83	nd	.11	.70	.03	.02	.01	.015	.3	26.	94.
15:10-16:10	5.3	.003	.83	nd	nd	.72	.03	.02	.01	.014	.1	27.	95.

LONDON_86 : B012

Statistics	CO	TRS	THC	SO2	Non-CH4	Methane	NOx	NO2	NO	Ozone	Temp	Wind-Spd	Wind-Dir
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	d C	km/h	deg
Arith. Mean	5.28	.0031	.832	.005	.111	.796	.032	.016	.015	.014	.2	-	-
Std. Dev.	1.30	.0022	.122	.000	.101	.054	.007	.005	.005	.002	.3	-	-
Geo. Mean	5.13	.0024	.825	.005	.089	.704	.031	.015	.014	.014	-	-	-
Geo.Std.Dev	1.27	2.1687	1.139	1.000	1.838	1.077	1.236	1.466	1.499	1.176	-	-	-
Min Reading	3.16	.0010	.655	.005	.050	.609	.019	.005	.005	.009	-.3	17.1	81.0
Max Reading	9.65	.0093	1.487	.005	.750	.890	.055	.028	.028	.022	1.0	41.0	103.0
Min Average	5.16	.0028	.821	.005	.097	.695	.030	.015	.014	.014	.1	25.5	93.7
Max Average	5.98	.0033	.842	.005	.116	.719	.033	.017	.015	.015	.3	27.0	94.9
# Valid Rdgs	92.	92.	92.	92.	92.	92.	92.	92.	92.	92.	92.	92.	92.
Min.Det.Lev	.10	.0020	.100	.010	.100	.100	.010	.010	.010	.004	-	-	-
1 hr Crit.	30.00	.0270	-	.250	-	-	-	.200	-	.080	-	-	-

- Invalid Data / Not Calculated
nd Average is less than Min. Detectable Level
m One or more readings Missing
* Average is above Provincial Std/Criteria

Percent Valid Data Required for Valid Average: 90.0 %
Averaging Started at Nearest: .0 min
Averages updated every SCAN time

LONDON_86 : B033 (MAMU 2)

Start: 86/12/03 11:35 Scan: 60 sec
Average: 60.00 min Report: 30.00 min
Loc: 38 SILVERDALE CRES

Time	CO	TRS	THC	SO2	Non-CH4	Methane	NOx	NO2	NO	Hg	Ozone	Temp	Wind-Spd	Wind-Dir
11:35-12:35	1.8	.003	1.95	nd	.59	1.42	.04	.02	.02	nd	.005	2.8	11.	277.
12:05-13:05	1.8	.004	2.04	nd	.63	1.47	.04	.01	.03	nd	.006	3.0	11.	275.
12:35-13:35	1.7	.004	2.01	nd	.62	1.46	.03	nd	.02	nd	.007	3.3	11.	274.
13:05-14:05	1.7	.004	2.04	nd	.63	1.49	.03	nd	.02	nd	.007	3.0	12.	273.

LONDON_86 : B033

Statistics	CO	TRS	THC	SO2	Non-CH4	Methane	NOx	NO2	NO	Hg	Ozone	Temp	Wind-Spd	Wind-Dir
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ug/m^3	ppm	d C	km/h	deg
Arith. Mean	1.76	.0037	2.001	.007	.612	1.457	.034	.011	.022	.010	.006	2.9	-	-
Std. Dev.	.39	.0023	.277	.004	.115	.171	.007	.005	.004	.004	.002	.3	-	-
Geo. Mean	1.73	.0028	1.984	.006	.603	1.448	.034	.010	.022	.010	.006	-	-	-
Geo.Std.Dev	1.20	2.1508	1.138	1.514	1.190	1.117	1.221	1.653	1.202	1.155	1.378	-	-	-
Min Reading	1.26	.0010	1.496	.005	.407	1.159	.021	.005	.015	.010	.002	2.3	3.5	227.9
Max Reading	4.01	.0098	3.642	.018	1.272	2.455	.063	.027	.038	.060	.011	3.6	24.9	297.8
Min Average	1.67	.0028	1.946	.005	.589	1.423	.029	.008	.019	.010	.005	2.8	10.4	272.2
Max Average	1.81	.0046	2.109	.010	.659	1.520	.041	.016	.026	.011	.007	3.3	11.8	277.3
# Valid Rdgs	156.	156.	156.	156.	156.	156.	156.	156.	156.	156.	156.	156.	156.	156.
Min.Det.Lev	.10	.0020	.100	.010	.100	.100	.010	.010	.010	.005	.004	-	-	-
1 hr Crit.	30.00	.0270	-	.250	-	-	-	.200	-	-	.080	-	-	-

- Invalid Data / Not Calculated
nd Average is less than Min. Detectable Level
m One or more readings Missing
* Average is above Provincial Std/Criteria

Percent Valid Data Required for Valid Average: 90.0 %
Averaging Started at Nearest: .0 min
Averages updated every SCAN time

LONDON_86 : B034 (MAMU 2)

Start: 86/12/03 14:35 Scan: 60 sec
Average: 60.00 min Report: 30.00 min
Loc: NW CORNER VICTORIA HOSP(UPWIND)

Time	CO	TRS	THC	SO2	Non-CH4	Methane	NOx	NO2	NO	Hg	Ozone	Temp	Wind-Spd	Wind-Dir

LONDON_86 : B034

Statistics	CO	TRS	THC	SO2	Non-CH4	Methane	NOx	NO2	NO	Hg	Ozone	Temp	Wind-Spd	Wind-Dir
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ug/m^3	ppm	d C	km/h	deg
Arith. Mean	1.63	.0040	1.167	.005	.301	.915	.042	.017	.025	.010	.008	2.6	-	-
Std. Dev.	.17	.0022	.046	.000	.041	.009	.008	.004	.005	.000	.001	.4	-	-
Geo. Mean	1.62	.0033	1.166	.005	.299	.915	.042	.017	.025	.010	.008	-	-	-
Geo.Std.Dev	1.10	1.9925	1.037	1.000	1.116	1.010	1.162	1.223	1.185	1.000	1.188	-	-	-
Min Reading	1.37	.0010	1.124	.005	.275	.893	.034	.011	.020	.010	.005	.6	4.4	222.1
Max Reading	2.35	.0091	1.411	.005	.520	.930	.083	.031	.052	.010	.010	2.8	15.8	332.2
# Valid Rdgs	36.	36.	36.	36.	36.	36.	36.	36.	36.	36.	36.	36.	36.	36.
Min.Det.Lev	.10	.0020	.100	.010	.100	.100	.010	.010	.010	.005	.004	-	-	-
1 hr Crit.	30.00	.0270	-	.250	-	-	-	.200	-	-	.080	-	-	-

- Invalid Data / Not Calculated
nd Average is less than Min. Detectable Level
m One or more readings Missing
* Average is above Provincial Std/Criteria

Percent Valid Data Required for Valid Average: 90.0 %
Averaging Started at Nearest: .0 min
Averages updated every SCAN time

LONDON_86 : B042 (MAMU 2)

Start: 86/12/04 10:45 Scan: 60 sec
Average: 60.00 min Report: 30.00 min
Loc: WESTMINSTER APTS

Time	CO	TRS	THC	SO2	Non-CH4	Methane	NOx	NO2	NO	Hg	Ozone	Temp	Wind-Spd	Wind-Dir
10:45-11:45	2.7	.004	1.43	nd	.43	1.05	.03	.01	.02	nd	.016	.0	21.	271.
11:15-12:15	2.5	.003	1.34	nd	.38	1.00	.03	.01	.02	nd	.016	.4	25.	274.
11:45-12:45	2.2	.005	1.23	nd	.32	.97	.03	.01	.02	nd	.016	.3	27.	276.
12:15-13:15	1.8	.006	1.23	nd	.31	.98	.03	.01	.01	nd	.017	.3	29.	277.

LONDON_86 : B042

Statistics	CO	TRS	THC	SO2	Non-CH4	Methane	NOx	NO2	NO	Hg	Ozone	Temp	Wind-Spd	Wind-Dir
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ug/m**3	ppm	d C	km/h	deg
Arith. Mean	2.21	.0046	1.322	.005	.364	1.008	.034	.015	.016	.014	.016	.1	-	-
Std. Dev.	.70	.0032	.283	.000	.210	.062	.008	.005	.004	.045	.002	.4	-	-
Geo. Mean	2.12	.0034	1.307	.005	.347	1.007	.033	.014	.015	.011	.016	-	-	-
Geo.Std.Dev	1.31	2.2954	1.141	1.000	1.283	1.061	1.188	1.380	1.332	1.484	1.175	-	-	-
Min Reading	1.36	.0010	1.108	.005	.253	.905	.027	.005	.005	.010	.005	-.8	4.4	255.3
Max Reading	6.59	.0138	4.641	.005	2.909	1.376	.084	.044	.033	.025	.019	1.2	42.6	317.9
Min Average	1.63	.0031	1.216	.005	.306	.962	.031	.012	.014	.010	.016	.0	21.1	270.7
Max Average	2.78	.0065	1.425	.005	.426	1.045	.037	.019	.017	.022	.017	.5	28.9	277.9
# Valid Rdgs	169.	169.	169.	169.	169.	169.	169.	169.	169.	169.	169.	169.	169.	169.
Min.Det.Lev	.10	.0020	.100	.010	.100	.100	.010	.010	.010	.005	.004	-	-	-
1 hr Crit.	30.00	.0270	-	.250	-	-	-	.200	-	-	.080	-	-	-

- Invalid Data / Not Calculated
nd Average is less than Min. Detectable Level
n One or more readings Missing
* Average is above Provincial Std/Criteria

Percent Valid Data Required for Valid Average: 90.0 %
Averaging Started at Nearest: .0 min
Averages updated every SCAN time

LONDON_86 : B102 (MAMU 2)

Start: 86/12/10 10:57 Scan: 60 sec
Average: 60.00 min Report: 30.00 min
Loc: BRISTOL APTS

Time	CO	TRS	THC	SO2	Non-CH4	Methane	NOx	NO2	NO	Hg	Ozone	Temp	Wind-Spd	Wind-Dir
10:57-11:57	1.6	nd	1.08	nd	.18	.87	.05	nd	.04	nd	.005	-6.6	16.	263.
11:27-12:27	1.7	.002	1.00	nd	.14	.83	.05	nd	.04	nd	.005	-6.4	17.	263.
11:57-12:57	1.9	.003	.98	nd	.15	.81	.06	.01	.05	nd	.005	-6.0	15.	267.
12:27-13:27	1.9	.003	.95	.02	.12	.80	.06	.01	.05	nd	.006	-5.7	16.	265.
12:57-13:57	1.5	.003	.92	.02	nd	.80	.06	.01	.05	nd	.010	-5.5	17.	260.
13:27-14:27	1.4	.003	.90	.02	nd	.79	.06	.01	.05	nd	.014	-5.5	15.	256.
13:57-14:57	1.6	.003	.89	.02	nd	.79	.05	nd	.04	nd	.015	-5.2	16.	254.
14:27-15:27	2.0	.003	.90	.02	nd	.79	.06	.01	.04	nd	.014	-4.9	14.	256.
14:57-15:57	2.1	.004	.92	.02	nd	.79	.06	.02	.05	nd	.013	-5.1	12.	258.

LONDON_86 : B102

Statistics	CO	TRS	THC	SO2	Non-CH4	Methane	NOx	NO2	NO	Hg	Ozone	Temp	Wind-Spd	Wind-Dir
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ug/m^3	ppm	d C	km/h	deg
Arith. Mean	1.76	.0029	.956	.013	.115	.813	.056	.011	.046	.005	.010	-5.7	-	-
Std. Dev.	.34	.0025	.093	.007	.066	.039	.018	.008	.011	.052	.005	.7	-	-
Geo. Mean	1.73	.0021	.951	.011	.097	.812	.054	.009	.045	.052	.009	-	-	-
Geo.Std.Dev	1.21	2.2600	1.098	1.964	1.809	1.048	1.338	1.842	1.258	3.037	1.757	-	-	-
Min Reading	1.18	.0010	.785	.005	.050	.749	.023	.005	.023	.005	.002	-7.0	4.7	228.7
Max Reading	3.16	.0130	1.321	.024	.349	.953	.163	.049	.114	.005	.017	-4.1	28.1	301.3
Min Average	1.40	.0017	.882	.005	.071	.787	.048	.007	.042	.005	.005	-6.6	11.7	253.8
Max Average	2.15	.0041	1.078	.022	.180	.873	.067	.018	.051	.005	.015	-4.9	17.2	268.0
# Valid Rdgs	307.	307.	307.	307.	307.	307.	307.	307.	307.	307.	307.	307.	307.	307.
Min.Det.Lev	.10	.0020	.100	.010	.100	.100	.010	.010	.010	.005	.004	-	-	-
1 hr Crit.	30.00	.0270	-	.250	-	-	-	.200	-	-	.080	-	-	-

- Invalid Data / Not Calculated
nd Average is less than Min. Detectable Level
m One or more readings Missing
* Average is above Provincial Std/Criteria

Percent Valid Data Required for Valid Average: 90.0 %
Averaging Started at Nearest: .0 min
Averages updated every SCAN time

LONDON_86 : B112 (MAMU 2)

Start: 86/12/11 11:27
Average: 60.00 min
Loc: THOMPSON RD

Scan: 60 sec
Report: 30.00 min

Time	CO	TRS	THC	SO2	Non-CH4	Methane	NOx	NO2	NO	Hg	Ozone	Temp	Wind-Spd	Wind-Dir
11:27-12:27	2.5	.003	1.08	nd	.24	.83	.03	nd	.01	nd	.015	-3.2	7.	224.
11:57-12:57	2.3	.003	1.04	nd	.23	.80	.02	nd	.01	nd	.017	-2.7	8.	224.
12:27-13:27	2.1	.002	1.02	nd	.22	.79	.02	nd	.01	nd	.017	-2.5	11.	219.
12:57-13:57	2.0	.002	1.01	nd	.22	.79	.02	nd	nd	nd	.017	-2.4	13.	216.
13:27-14:27	1.9	.003	1.00	nd	.21	.78	.02	.01	nd	nd	.017	-2.5	14.	216.
13:57-14:57	1.8	.004	1.00	nd	.21	.78	.03	.02	nd	nd	.016	-2.7	13.	214.

LONDON_86 : B112

Statistics	CO	TRS	THC	SO2	Non-CH4	Methane	NOx	NO2	NO	Hg	Ozone	Temp	Wind-Spd	Wind-Dir
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ug/m^3	ppm	d C	km/h	deg
Arith. Mean	2.10	.0029	1.030	.005	.223	.798	.025	.012	.010	.005	.016	-2.7	-	-
Std. Dev.	.30	.0024	.043	.000	.023	.023	.004	.007	.005	.044	.002	.4	-	-
Geo. Mean	2.08	.0021	1.029	.005	.221	.797	.025	.010	.009	.186	.016	-	-	-
Geo.Std.Dev	1.16	2.2270	1.042	1.000	1.104	1.029	1.156	1.800	1.672	1.289	1.131	-	-	-
Min Reading	1.27	.0010	.960	.005	.177	.764	.019	.005	.005	.005	.010	-4.0	1.2	192.2
Max Reading	2.92	.0118	1.193	.005	.315	.868	.039	.025	.021	.005	.021	-2.0	24.0	250.3
Min Average	1.79	.0020	.997	.005	.208	.780	.023	.007	.005	.005	.015	-3.2	7.1	212.8
Max Average	2.46	.0039	1.082	.005	.241	.828	.027	.021	.014	.005	.017	-2.3	14.2	224.8
# Valid Rdgs	210.	210.	210.	210.	210.	210.	210.	210.	210.	210.	210.	210.	210.	210.
Min.Det.Lev	.10	.0020	.100	.010	.100	.100	.010	.010	.010	.005	.004	-	-	-
1 hr Crit.	30.00	.0270	-	.250	-	-	-	.200	-	-	.080	-	-	-

\- Invalid Data / Not Calculated
nd Average is less than Min. Detectable Level
m One or more readings Missing
* Average is above Provincial Std/Criteria

Percent Valid Data Required for Valid Average: 90.0 %
Averaging Started at Nearest: .0 min
Averages updated every SCAN time

LONDON_86 : B113 (MAMU 2)

Start: 86/12/11 15:22 Scan: 60 sec
Average: 60.00 min Report: 30.00 min
Loc: UPWIND AT PARKWOOD HOSP

Time	CO	TRS	THC	SO2	Non-CH4	Methane	NOx	NO2	NO	Hg	Ozone	Temp	Wind-Spd	Wind-Dir
15:22-16:22	1.3	.004	1.22	nd	.32	.89	.05	.03	nd	nd	.011	-3.1	24.	198.

LONDON_86 : B113

Statistics	CO	TRS	THC	SO2	Non-CH4	Methane	NOx	NO2	NO	Hg	Ozone	Temp	Wind-Spd	Wind-Dir
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ug/m^3	ppm	d C	km/h	deg
Arith. Mean	1.29	.0044	1.233	.005	.329	.893	.050	.029	.008	.005	.011	-3.1	-	-
Std. Dev.	.13	.0032	.082	.000	.070	.022	.011	.004	.006	.013	.002	.2	-	-
Geo. Mean	1.28	.0032	1.230	.005	.322	.893	.049	.029	.006	.190	.011	-	-	-
Geo.Std.Dev	1.11	2.4114	1.069	1.000	1.236	1.025	1.226	1.134	1.656	1.070	1.205	-	-	-
Min Reading	1.05	.0010	1.094	.005	.236	.842	.037	.024	.005	.005	.006	-3.4	15.9	182.9
Max Reading	1.57	.0129	1.387	.005	.453	.930	.081	.039	.030	.005	.014	-2.8	31.5	213.3
Min Average	1.27	.0042	1.224	.005	.322	.891	.049	.029	.007	.005	.011	-3.1	23.9	198.4
Max Average	1.28	.0045	1.241	.005	.334	.896	.050	.029	.008	.005	.011	-3.1	24.0	199.0
# Valid Rdgs	64.	64.	64.	64.	64.	64.	64.	64.	64.	64.	64.	64.	64.	64.
Min.Det.Lev	.10	.0020	.100	.010	.100	.100	.010	.010	.010	.005	.004	-	-	-
1 hr Crit.	30.00	.0270	-	.250	-	-	-	.200	-	-	.080	-	-	-

- Invalid Data / Not Calculated
nd Average is less than Min. Detectable Level
m One or more readings Missing
* Average is above Provincial Std/Criteria

Percent Valid Data Required for Valid Average: 90.0 %
Averaging Started at Nearest: .0 min
Averages updated every SCAN time

LONDON_86 : B122 (MAMU 2)

Start: 86/12/12 09:58 Scan: 60 sec
Average: 60.00 min Report: 30.00 min
Loc: 28 PARLIAMENT AVE

Time	CO	TRS	THC	SO2	Non-CH4	Methane	NOx	NO2	NO	Hg	Ozone	Temp	Wind-Spd	Wind-Dir
09:58-10:58	2.2	.003	2.66	nd	.81	1.92	.03	nd	.02	nd	.017	-1.5	12.	307.
10:28-11:28	1.4	.003	2.83	nd	.85	2.04	.02	nd	.02	nd	.018	-.3	10.	300.
10:58-11:58	1.2	.004	3.20	nd	.99	2.27	.02	nd	.02	nd	.020	-.7	9.	297.

LONDON_86 : B122

Statistics	CO	TRS	THC	SO2	Non-CH4	Methane	NOx	NO2	NO	Hg	Ozone	Temp	Wind-Spd	Wind-Dir
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ug/m^3	ppm	d C	km/h	deg
Arith. Mean	1.83	.0033	3.031	.005	.939	2.156	.025	.006	.019	.010	.019	-.9	-	-
Std. Dev.	.96	.0023	.837	.000	.331	.514	.005	.003	.004	.000	.002	1.1	-	-
Geo. Mean	1.66	.0025	2.929	.005	.888	2.102	.024	.006	.018	.010	.019	-	-	-
Geo.Std.Dev	1.52	2.1636	1.294	1.000	1.392	1.249	1.253	1.425	1.279	1.000	1.102	-	-	-
Min Reading	.94	.0010	1.703	.005	.402	1.367	.011	.005	.005	.010	.015	-2.6	3.9	265.1
Max Reading	7.73	.0107	6.097	.005	2.159	4.048	.040	.016	.030	.010	.022	1.2	20.2	328.1
Min Average	1.17	.0028	2.665	.005	.802	1.919	.021	.005	.017	.010	.017	-1.5	9.3	296.7
Max Average	2.22	.0037	3.500	.005	1.117	2.452	.028	.007	.020	.010	.020	-.2	11.6	306.7
# Valid Rdgs	135.	135.	135.	135.	135.	135.	135.	135.	135.	135.	135.	135.	135.	135.
Min.Det.Lev	.10	.0020	.100	.010	.100	.100	.010	.010	.010	.005	.004	-	-	-
1 hr Crit.	30.00	.0270	-	.250	-	-	-	.200	-	-	.080	-	-	-

- Invalid Data / Not Calculated
nd Average is less than Min. Detectable Level
n One or more readings Missing
* Average is above Provincial Std/Criteria

Percent Valid Data Required for Valid Average: 90.0 %
Averaging Started at Nearest: .0 min
Averages updated every SCAN time

APPENDIX B

Gas Chromatograph Results
Units are ug/m^3

Sample periods are 30-minute or 60-minute duration and should be compared to standards (30) or criteria (60) as listed in Table 7.

GCLONDON_86 DATA ACQUIRED BY HAMU 1

30-MINUTE SAMPLE PERIOD ENDING..	1986 DEC 1 15:56	1986 DEC 3 10:34	1986 DEC 3 11:34	1986 DEC 3 12:34	1986 DEC 3 13:34	1986 DEC 3 14:57	1986 DEC 4 13:54	1986 DEC 4 15:17	1986 DEC 10 11:33	1986 DEC 10 13:27	1986 DEC 10 15:49	1986 DEC 11 11:37	1986 DEC 11 13:18	1986 DEC 11 14:27	1986 DEC 11 16:02	1986 DEC 11 17:23	1986 DEC 12 10:24	1986 DEC 12 11:12	AVERAGE	COUNT	
PERIOD #	A011	A031	A031	A031	A031	A032	A042	A042	A102	A102	A103	A112	A112	A112	A113	A113	A121	A122			
1 ETHANE																					1 ETHANE
2 PROPANE	26.45	52.81	33.50	11.73	14.29	4.45	3.43	3.46	20.07	15.73	18.29	28.27	35.33	2.88	1.87		8.51	2.23	16.67	17	2 PROPANE
3 PROPADIENE																					3 PROPADIENE
4 PROPYNE																					4 PROPYNE
5 CYCLOPROPANE											1.08								1.08	1	5 CYCLOPROPANE
6 CHLOROMETHANE																					6 CHLOROMETHANE
7 2-METHYLPROPANE	6.09		19.51	4.00	6.10	7.53	10.80		8.81	4.97	8.43	7.55	7.68		6.44		9.57		8.27	13	7 2-METHYLPROPANE
8 CHLOROETHENE																					8 CHLOROETHENE
9 1-BUTENE		4.39	1.79						1.05		2.14						12.20		4.31	5	9 1-BUTENE
10 2CHLORO2METHYLPROPANE																					10 2CHLORO2METHYLPROPANE
11 1,3-BUTADIENE																					11 1,3-BUTADIENE
12 BUTANE	31.61	122.69	86.77	19.28	31.53	36.46	52.91		34.45	25.70	40.51	34.85	31.27		28.15		56.51	13.83	43.10	15	12 BUTANE
13 1-BUTYNE																					13 1-BUTYNE
14 CHLOROETHANE																					14 CHLOROETHANE
15 3-METHYL-1-BUTENE																					15 3-METHYL-1-BUTENE
16 2-METHYLBUTANE	13.51	18.58	28.29	8.51	12.63	15.00	20.87		12.24	10.04	22.31	8.74	11.88		9.51		29.89	5.39	15.16	15	16 2-METHYLBUTANE
17 1-PENTENE																					17 1-PENTENE
18 PENTANE	7.96	9.79	14.15	5.43	7.06	8.19	10.62		7.73	6.99	14.13	6.70	6.57		5.71		24.03		9.50	14	18 PENTANE
19 2-METHYL-1,3-BUTADIENE																					19 2-METHYL-1,3-BUTADIENE
20 TRANS-2-PENTENE	0.71								0.70		1.75						2.22		1.35	4	20 TRANS-2-PENTENE
21 CIS-2-PENTENE																					21 CIS-2-PENTENE
22 DICHLOROMETHANE																					22 DICHLOROMETHANE
23 2-METHYL-2-BUTENE																					23 2-METHYL-2-BUTENE
24 3-CHLOROPROPENE																					24 3-CHLOROPROPENE
25 2,2-DIMETHYLBUTANE							1.08		0.71		1.10						2.33		1.31	4	25 2,2-DIMETHYLBUTANE
26 4-METHYL-1-PENTENE																					26 4-METHYL-1-PENTENE
27 3-METHYL-1-PENTENE																					27 3-METHYL-1-PENTENE
28 CYCLOPENTANE									1.33	1.23	1.93	0.82	1.15				3.55		1.67	6	28 CYCLOPENTANE
29 TRANS12DICHOROETHANE		4.91	7.20	2.75	3.93	4.18	5.40		4.75	4.20	9.87	2.60	3.43		2.61		18.10		5.69	13	29 TRANS12DICHOROETHANE

GCLONDON_86 DATA ACQUIRED BY MANU 1

30-MINUTE SAMPLE PERIOD ENDING.. PERIOD #	1986 DEC 1 15:56 A011	1986 DEC 3 10:34 A031	1986 DEC 3 11:34 A031	1986 DEC 3 12:34 A031	1986 DEC 3 13:34 A031	1986 DEC 3 14:57 A032	1986 DEC 4 13:54 A042	1986 DEC 4 15:17 A042	1986 DEC 10 11:33 A102	1986 DEC 10 13:27 A102	1986 DEC 10 15:49 A103	1986 DEC 11 11:37 A112	1986 DEC 11 13:18 A112	1986 DEC 11 14:27 A112	1986 DEC 11 16:02 A113	1986 DEC 11 17:23 A113	1986 DEC 12 10:24 A121	1986 DEC 12 11:12 A122	AVERAGE	COUNT	
30 2,3-DIMETHYLBUTANE							1.29		0.87	0.81	2.19	0.57			0.98		4.43		1.59	7	30 2,3-DIMETHYLBUTANE
31 2-METHYLPENTANE		5.27	7.66	3.56	4.80	5.01	6.06	2.21	4.19	4.12	10.60	2.70	3.64	1.17	2.94	1.37	25.00		5.64	16	31 2-METHYLPENTANE
32 3-METHYLPENTANE	3.52	3.73	5.28	2.49	3.59	3.55	4.20	1.34	2.96	2.92	7.41	2.28	2.49	0.65	2.00	0.94	16.82		3.89	17	32 3-METHYLPENTANE
33 1-HEXENE											0.37						0.81		0.59	2	33 1-HEXENE
34 CIS-1,2-DICHLOROETHENE		1.31								1.06	1.04						2.14		1.39	4	34 CIS-1,2-DICHLOROETHENE
35 2-CHLOROBUTANE																					35 2-CHLOROBUTANE
36 HEXANE	4.39	5.70	7.52	3.34	4.16	4.38	6.66	2.25	4.46	4.04	8.44	2.35	3.56	1.61	2.78	2.27	20.61		5.21	17	36 HEXANE
37 TRICHLOROMETHANE																					37 TRICHLOROMETHANE
38 TRANS-3-HEXENE																					38 TRANS-3-HEXENE
39 3-CHLORO-2-METHYLPROPENE											0.61						0.87		0.74	2	39 3-CHLORO-2-METHYLPROPENE
40 METHYLCYCLOPENTANE		2.25	2.83	1.38	1.91	1.78	2.35	0.80	1.62	1.59	3.63	1.04	1.33	0.48	1.07	0.66	8.17		2.06	16	40 METHYLCYCLOPENTANE
41 1,2-DICHLOROETHANE																					41 1,2-DICHLOROETHANE
42 1,1,1-TRICHLOROETHANE		16.11	14.95	11.73	9.25	9.61	9.96	4.01	7.30	5.43	5.97	7.67	9.51		8.45		7.20		9.08	14	42 1,1,1-TRICHLOROETHANE
43 1-CHLOROBUTANE																					43 1-CHLOROBUTANE
44 BENZENE	4.57	119.17	12.28	30.03	5.21	11.37	3.95	6.04	4.48	3.62	11.67	5.92	3.13	4.82	3.38	6.99	13.25		14.70	17	44 BENZENE
45 TETRACHLOROMETHANE											16.77						26.88		21.83	2	45 TETRACHLOROMETHANE
46 CYCLOHEXANE	0.32	4.47	3.11	0.31	0.56	0.26	0.46	0.22	1.91	0.80	0.51	0.39	0.40		0.30	0.24	1.35		0.98	16	46 CYCLOHEXANE
47 2,3-DIMETHYLPENTANE		3.53	5.59	2.34	2.78	2.87	3.41	2.18	2.37	2.43	6.78	1.36	1.97	1.22	1.57		11.23		3.44	15	47 2,3-DIMETHYLPENTANE
48 2-METHYLHEXANE		3.96	6.38	2.68	3.17	3.28	3.90	2.49	2.71	2.78	7.74	1.55	2.25	1.40	1.80		12.82		3.93	15	48 2-METHYLHEXANE
49 CYCLOHEXENE																	0.52		0.52	1	49 CYCLOHEXENE
50 DIBROMOMETHANE																					50 DIBROMOMETHANE
51 3-METHYLHEXANE	2.14	2.08	3.66	1.42	2.00	2.09	2.44	1.40	1.74	1.80	4.66	0.99	1.35	0.84	1.05	1.50	9.09		2.37	17	51 3-METHYLHEXANE
52 1,2-DICHLOROPROPANE																					52 1,2-DICHLOROPROPANE
53 2,3-DICHLOROPROPENE																					53 2,3-DICHLOROPROPENE
54 TRICHLOROETHENE																1.64			1.64	1	54 TRICHLOROETHENE
55 2,2,4-TRIMETHYLPENTANE	2.32	3.07	4.12	1.74	1.79	2.22	2.59	1.54	1.66	1.62	4.12	1.10	1.31	0.84	1.27		3.00		2.14	16	55 2,2,4-TRIMETHYLPENTANE
56 1-HEPTENE																					56 1-HEPTENE
57 HEPTANE	1.40	1.77	2.75	0.79	1.12	1.23	1.64	0.61	1.19	1.25	3.28	0.57	0.76	0.42	0.60	0.82	6.06		1.54	17	57 HEPTANE
58 1-CHLORO-3-METHYLBUTANE																					58 1-CHLORO-3-METHYLBUTANE

GCLONDON_86 DATA ACQUIRED BY MANU 1

	30-MINUTE SAMPLE PERIOD ENDING.. PERIOD #	1986 DEC 1 15:56 A011	1986 DEC 3 10:34 A031	1986 DEC 3 11:34 A031	1986 DEC 3 12:34 A031	1986 DEC 3 13:34 A031	1986 DEC 3 14:57 A032	1986 DEC 4 13:54 A042	1986 DEC 4 15:17 A042	1986 DEC 10 11:33 A102	1986 DEC 10 13:27 A102	1986 DEC 10 15:49 A103	1986 DEC 11 11:37 A112	1986 DEC 11 13:18 A112	1986 DEC 11 14:27 A112	1986 DEC 11 16:02 A113	1986 DEC 11 17:23 A113	1986 DEC 12 10:24 A121	1986 DEC 12 11:12 A122	AVERAGE	COUNT	
59	TRANS-2-HEPTENE																					59 TRANS-2-HEPTENE
60	METHYLCYCLOHEXANE																					60 METHYLCYCLOHEXANE
61	4-METHYLCYCLOHEXENE			0.43																0.43	1	61 4-METHYLCYCLOHEXENE
62	2,5-DIMETHYLHEXANE	0.34	0.39	0.64			0.33	0.35		0.24	0.24	0.77						0.98		0.48	9	62 2,5-DIMETHYLHEXANE
63	1-CHLOROPENTANE																					63 1-CHLOROPENTANE
64	1,1,2-TRICHLOROETHANE																					64 1,1,2-TRICHLOROETHANE
65	TOLUENE		13.36	14.47	4.92	6.53	9.70	9.91	3.26	6.65	5.87	15.42	3.09	3.27	2.34	4.12		19.27		8.15	15	65 TOLUENE
66	1,3-DICHLOROPROPANE																					66 1,3-DICHLOROPROPANE
67	2-METHYLHEPTANE		0.61	0.92	0.36	0.51	0.58	0.61	0.15	0.45	0.52	1.45	0.43	0.13		0.13		2.36		0.66	14	67 2-METHYLHEPTANE
68	4-METHYLHEPTANE			0.51			0.31	0.35		0.24	0.31	0.88						1.24		0.55	7	68 4-METHYLHEPTANE
69	3-METHYLHEPTANE	1.37	1.11	1.99	0.72	1.32	1.54	1.62	0.97	1.06	0.99	2.68	0.50	0.61	0.43	0.50		4.28		1.36	16	69 3-METHYLHEPTANE
70	1,2-DIBROMOETHANE																					70 1,2-DIBROMOETHANE
71	1-OCTENE																					71 1-OCTENE
72	TRANS12DIMETHYLCYCLOHEXAN											0.21						0.41		0.31	2	72 TRANS12DIMETHYLCYCLOHEXAN
73	TRANS-4-OCTENE																					73 TRANS-4-OCTENE
74	TETRACHLOROETHENE		1.93	1.89			2.43					1.07								1.83	4	74 TETRACHLOROETHENE
75	2-METHYL-1-HEPTENE		1.13	1.43	0.51	0.68	0.97	0.80		0.69	0.79	2.01	0.34	0.38				3.07		1.07	12	75 2-METHYL-1-HEPTENE
76	OCTANE	0.84																		0.84	1	76 OCTANE
77	2-OCTENE																					77 2-OCTENE
78	CIS12DIMETHYLCYCLOHEXAN											0.41						0.63		0.52	2	78 CIS12DIMETHYLCYCLOHEXAN
79	CHLOROBENZENE		0.32	0.28			0.36		0.44			0.49	0.58		0.60				0.74	0.48	8	79 CHLOROBENZENE
80	ETHYLCYCLOHEXANE																					80 ETHYLCYCLOHEXANE
81	PROPYLCYCLOPENTANE																					81 PROPYLCYCLOPENTANE
82	1-CHLOROHEXANE																					82 1-CHLOROHEXANE
83	ETHYLBENZENE	2.09	2.80	3.64	1.36	1.77	2.44	2.11		1.46	1.69	4.27	0.87	0.80	0.57	0.89		5.15		2.13	15	83 ETHYLBENZENE
84	M-XYLENE		7.02	8.91	3.89	4.90	8.01	5.68	3.08	3.63	4.48	13.55	2.86	2.20	2.07	2.31		16.14	2.09	5.68	16	84 M-XYLENE
85	4-METHYLOCTANE		0.32	0.68			0.68	0.35		0.34	0.38	1.15						1.51		0.68	8	85 4-METHYLOCTANE
86	2-METHYLOCTANE											0.68						0.83		0.76	2	86 2-METHYLOCTANE
87	STYRENE		0.45	0.35								0.59						0.52		0.48	4	87 STYRENE

GCLONDON_86 DATA ACQUIRED BY MAMU I

	30-MINUTE SAMPLE PERIOD ENDING.. PERIOD #	1986 DEC 1 15:56 A011	1986 DEC 3 10:34 A031	1986 DEC 3 11:34 A031	1986 DEC 3 12:34 A031	1986 DEC 3 13:34 A031	1986 DEC 3 14:57 A032	1986 DEC 4 13:54 A042	1986 DEC 4 15:17 A042	1986 DEC 10 11:33 A102	1986 DEC 10 13:27 A102	1986 DEC 10 15:49 A103	1986 DEC 11 11:37 A112	1986 DEC 11 13:18 A112	1986 DEC 11 14:27 A112	1986 DEC 11 16:02 A113	1986 DEC 11 17:23 A113	1986 DEC 12 10:24 A121	1986 DEC 12 11:12 A122	AVERAGE	COUNT	
88	3METHYLOCTANE																					88 3METHYLOCTANE
89	1,4-DICHLOROBUTANE																					89 1,4-DICHLOROBUTANE
90	O-XYLENE	2.37	2.42	3.11	1.58	2.05	4.47	2.04	1.34	1.47	1.65	5.23	1.08	0.81	0.80	0.92		5.70	0.88	2.23	17	90 O-XYLENE
91	1,1,2,2-TETRACHLOROETHANE																					91 1,1,2,2-TETRACHLOROETHANE
92	1,2,3-TRICHLOROPROPANE																					92 1,2,3-TRICHLOROPROPANE
93	1-NONENE																					93 1-NONENE
94	TRANS14DICHLOROBUTENE																					94 TRANS14DICHLOROBUTENE
95	NONANE	0.56	0.91	0.99		0.44	1.92	0.63		0.64	0.66	1.18						1.37		0.93	10	95 NONANE
96	ISOPROPYLBENZENE						0.87					0.42								0.65	2	96 ISOPROPYLBENZENE
97	2-CHLOROTOLUENE																					97 2-CHLOROTOLUENE
98	3-CHLOROTOLUENE																					98 3-CHLOROTOLUENE
99	N-PROPYLBENZENE									0.44										0.44	1	99 N-PROPYLBENZENE
100	4-CHLOROTOLUENE	0.41	0.54	0.63			0.92				0.39	0.58						0.63		0.59	7	100 4-CHLOROTOLUENE
101	3-ETHYLTOLUENE							2.20	1.10	1.68			1.47				0.62			1.41	5	101 3-ETHYLTOLUENE
102	4-ETHYLTOLUENE		1.08	0.75	0.83	0.96	2.19	0.68		0.54	0.55	2.18						1.29		1.11	10	102 4-ETHYLTOLUENE
103	1,3,5-TRIMETHYLBENZENE							1.41	0.71	1.15										1.09	3	103 1,3,5-TRIMETHYLBENZENE
104	2-ETHYLTOLUENE							0.87		0.77										0.82	2	104 2-ETHYLTOLUENE
105	1,2,4-TRIMETHYLBENZENE			3.70				3.69		2.63	2.57	9.80								4.48	5	105 1,2,4-TRIMETHYLBENZENE
106	tert-BUTYLBENZENE		4.15	4.75	2.35	2.48	10.73	4.04		1.56	3.60	13.60		1.58	1.29			0.71	1.55	4.65	13	106 tert-BUTYLBENZENE
107	tBUTYLCYCLOHEXANE																					107 tBUTYLCYCLOHEXANE
108	1,3-DICHLOROBENZENE																					108 1,3-DICHLOROBENZENE
109	1-DECENE																					109 1-DECENE
110	(CHLOROMETHYL)BENZENE																					110 (CHLOROMETHYL)BENZENE
111	1,5-DICHLOROPENTANE																					111 1,5-DICHLOROPENTANE
112	1ISOBUTYLBENZENE																					112 1ISOBUTYLBENZENE
113	DECANE		1.05	0.89			2.62	1.66		0.63	0.52	1.06		0.45		3.92	3.05	1.22	1.82	1.57	12	113 DECANE
114	secBUTYLBENZENE																					114 secBUTYLBENZENE
115	3-(CHLOROMETHYL)HEPTANE																					115 3-(CHLOROMETHYL)HEPTANE
116	1,2,3-TRIMETHYLBENZENE							0.91		0.85								2.04		1.27	3	116 1,2,3-TRIMETHYLBENZENE

GCLONDON_86 DATA ACQUIRED BY MANU 1

	30-MINUTE SAMPLE PERIOD ENDING..	1986 DEC 1 15:56	1986 DEC 3 10:34	1986 DEC 3 11:34	1986 DEC 3 12:34	1986 DEC 3 13:34	1986 DEC 3 14:57	1986 DEC 4 13:54	1986 DEC 4 15:17	1986 DEC 10 11:33	1986 DEC 10 13:27	1986 DEC 10 15:49	1986 DEC 11 11:37	1986 DEC 11 13:18	1986 DEC 11 14:27	1986 DEC 11 16:02	1986 DEC 11 17:23	1986 DEC 12 10:24	1986 DEC 12 11:12	AVERAGE	COUNT	
	PERIOD #	A011	A031	A031	A031	A031	A032	A042	A042	A102	A102	A103	A112	A112	A112	A113	A113	A121	A122			
117	1ISOPROPYL4METHYLBENZENE										0.36									0.36	1	117 1ISOPROPYL4METHYLBENZENE
118	1,2-DICHLOROBENZENE																					118 1,2-DICHLOROBENZENE
119	INDAN	0.38					0.70			0.29	0.29	1.23						0.59		0.58	6	119 INDAN
120	N-BUTYLCYCLOHEXANE																					120 N-BUTYLCYCLOHEXANE
121	1,3-DIETHYLBENZENE											0.48								0.48	1	121 1,3-DIETHYLBENZENE
122	1,4-DIETHYLBENZENE											0.78								0.78	1	122 1,4-DIETHYLBENZENE
123	N-BUTYLBENZENE											0.56						0.78		0.67	2	123 N-BUTYLBENZENE
124	1,2-DIETHYLBENZENE																					124 1,2-DIETHYLBENZENE
125	T-DECALIN																					125 T-DECALIN
126	C-DECALIN																					126 C-DECALIN
127	UNDECANE	0.90	2.64	1.48	0.99		1.39	11.17		1.20	1.52	1.34		6.44		1.53				2.78	11	127 UNDECANE
128	1235-TETRAMETHYLBENZENE	0.45										1.26								0.86	2	128 1235-TETRAMETHYLBENZENE
129	1234-TETRAMETHYLBENZENE											0.59								0.59	1	129 1234-TETRAMETHYLBENZENE
130	1234-TETRAHYDRONAPTHALENE																					130 1234-TETRAHYDRONAPTHALENE
131	DIISOPROPYLBENZENE																					131 DIISOPROPYLBENZENE
132	NAPTHALENE																					132 NAPTHALENE
133	DODECANE		3.43	0.66	1.11			2.76				1.07	1.08	6.90		1.33		0.94	11.01	3.03	10	133 DODECANE
	Total Compounds Identified	23	40	45	32	31	40	45	23	48	43	63	34	34	21	31	13	54	11			Total Compounds Identified
	Total # of Peaks		74	95	62	57	81	69	40	80	86	142	67	67	41	63	41	112	41			Total # of Peaks
	Total Hydrocarbons ug/m3	114.70	431.25	320.52	132.13	137.52	176.62	207.86	39.6	157.91	130.51	304.32	128.32	152.58	24.43	98.13	20.1	416.82	39.54			Total Hydrocarbons ug/m3
	Alkanes ug/m3	103.96	244.35	234.5	70.49	97.73	107.24	151.68	18.6	111.36	90.69	172.55	99.59	124.59	11.46	74.08	9.95	254.76	34.28			Alkanes ug/m3
	Cycloalkanes ug/m3	0.32	6.72	5.94	1.69	2.47	2.04	2.81	1.02	4.86	3.62	7.77	2.25	2.88	0.48	1.37	0.9	14.11	0			Cycloalkanes ug/m3
	Alkenes ug/m3	0.71	5.52	3.22	0.51	0.68	0.97	0.8	0	2.44	0.79	6.27	0.34	0.38	0	0	0	18.3	0			Alkenes ug/m3
	Cycloalkenes ug/m3	0	0	0.43	0	0	0	0	0	0	0	0	0	0	0	0	0	0.52	0			Cycloalkenes ug/m3
	Alkynes ug/m3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			Alkynes ug/m3
	Aromatics ug/m3	9.86	150.45	51.96	44.96	23.9	50.48	37.49	15.53	27.6	24.68	81.63	15.29	11.79	11.89	11.62	7.61	73.44	4.52			Aromatics ug/m3

GCLONDON_86 DATA ACQUIRED BY MAMU 1

30-MINUTE SAMPLE PERIOD ENDING.. PERIOD #	1986 DEC 1 15:56 A011	1986 DEC 3 10:34 A031	1986 DEC 3 11:34 A031	1986 DEC 3 12:34 A031	1986 DEC 3 13:34 A031	1986 DEC 3 14:57 A032	1986 DEC 4 13:54 A042	1986 DEC 4 15:17 A042	1986 DEC 10 11:33 A102	1986 DEC 10 13:27 A102	1986 DEC 10 15:49 A103	1986 DEC 11 11:37 A112	1986 DEC 11 13:18 A112	1986 DEC 11 14:27 A112	1986 DEC 11 16:02 A113	1986 DEC 11 17:23 A113	1986 DEC 12 10:24 A121	1986 DEC 12 11:12 A122	AVERAGE	COUNT	
Chlorinated alkanes ug/m3	0	16.11	14.95	11.73	9.25	9.61	9.96	4.01	7.3	5.43	22.74	7.67	9.51	0	8.45	0	34.08	0			Chlorinated alkanes ug/m3
Chlorinated alkenes ug/m3	0	8.15	9.09	2.75	3.93	6.61	5.4	0	4.75	5.26	12.59	2.6	3.43	0	2.61	1.64	21.11	0			Chlorinated alkenes ug/m3
Chlorinated aromatics ug/m3	0.41	0.86	0.91	0	0	1.28	0	0.44	0	0.39	1.07	0.58	0	0.6	0	0	0.63	0.74			Chlorinated aromatics ug/m3
Toluene:Ethylbenzene	0	5	4	4	4	4	5		5	3	4	4	4	4	5		4		4		Toluene:Ethylbenzene
Benzene:Ethylbenzene	2	43	3	22	3	5	2		3	2	3	7	4	8	4		3		7		Benzene:Ethylbenzene
Xylenes:Ethylbenzene	1	3	3	4	4	5	4		3	4	4	5	4	5	4		4		4		Xylenes:Ethylbenzene

GCLONDON_86 DATA ACQUIRED BY MAMU 2

SAMPLE PERIOD DURATION WAS 30 MINUTES OR 60 MINUTES AND SHOULD BE COMPARED
TO STANDARDS(30) OR CRITERIA(60) AS LISTED IN TABLE 6

	SAMPLE PERIOD	1986 DEC 1	1986 DEC 1	1986 DEC 3	1986 DEC 3	1986 DEC 3	1986 DEC 4	1986 DEC 4	1986 DEC 4	1986 DEC 10	1986 DEC 10	1986 DEC 10	1986 DEC 11	1986 DEC 11	1986 DEC 11	1986 DEC 11	1986 DEC 12	1986 DEC 12			
	DURATION/ENDING	30/14:47	60/15:59	60/13:19	30/14:11	30/15:04	30/11:17	30/12:12	60/13:10	60/11:59	60/13:41	60/15:55	30/11:57	30/13:09	30/14:20	30/15:49	30/10:26	30/11:35	AVERAGE	COUNT	
	PERIOD #	B012	B012	B033	B033	B034	B042	B042	B042	B102	B102	B102	B112	B112	B112	B113	B122	B122			
1	ETHANE																				ETHANE
2	PROPANE	6.06	5.54	7.49	6.57	7.92	5.44	5.25	4.93	8.32	7.10	7.16	7.54	7.85	7.79	7.75	5.68	4.03	6.61	17	PROPANE
3	PROPADIENE		0.33						0.28	0.25	0.25	0.28							0.28	5	PROPADIENE
4	PROPYNE	0.56	0.48	0.38			0.66		0.44	0.37	0.38	0.44							0.46	8	PROPYNE
5	CHLOROMETHANE																				CHLOROMETHANE
6	CYCLOPROPANE																				CYCLOPROPANE
7	2-METHYLPROPANE	3.57	2.16	10.03	4.89	23.60	10.12	3.36	3.35	12.97	3.81	3.82	16.46	4.04	3.82	5.57	11.59	2.73	7.41	17	2-METHYLPROPANE
8	CHLOROETHENE																				CHLOROETHENE
9	1-BUTENE	3.15																1.16	2.16	2	1-BUTENE
10	1,3-BUTADIENE																				1,3-BUTADIENE
11	BUTANE	14.90	8.54	22.48	13.04	67.19	32.16	9.74	10.89	33.93	10.58	10.65	48.54	10.57	9.44	13.93	57.94	7.35	22.46	17	BUTANE
12	1-BUTYNE																				1-BUTYNE
13	CHLOROETHANE																				CHLOROETHANE
14	3-METHYL-1-BUTENE					1.52				0.84			1.29						1.22	3	3-METHYL-1-BUTENE
15	2-METHYLBUTANE	12.97	9.53	10.35	10.87	75.47	39.92	10.28	10.32	41.51	10.05	10.68	73.85	12.17	8.61	11.24	64.34	8.03	24.72	17	2-METHYLBUTANE
16	1-PENTENE	0.84		0.62		2.41	1.57		0.53	1.26	0.44	0.47	2.13				1.74		1.20	10	1-PENTENE
17	PENTANE	9.41	2.20	10.85	8.12	54.39	30.37	7.79	7.30	31.16	7.14	7.74	58.25	9.71	6.25	6.65	38.29	5.34	17.70	17	PENTANE
18	2-METHYL-1,3-BUTADIENE	3.07	1.39		2.32	1.38	2.77	2.90	1.83	1.34	1.04	1.16	1.64	1.19	1.33		1.14		1.75	14	2-METHYL-1,3-BUTADIENE
19	TRANS-2-PENTENE	1.36	0.73		0.69	4.28	2.60	0.70	0.67	2.09	0.60	0.66	3.77	0.68		0.81	3.12		1.63	14	TRANS-2-PENTENE
20	CIS-2-PENTENE	0.75				2.34	1.43		0.38	1.18	0.33	0.37	2.14				1.82		1.19	9	CIS-2-PENTENE
21	DICHLOROMETHANE												4.34	4.40	6.68				5.14	3	DICHLOROMETHANE
22	2-METHYL-2-BUTENE	2.69	1.38	1.88	1.53	8.32	5.43	1.59	1.42	4.57	1.26	1.28	8.31	1.55	1.02	1.08	7.03	0.98	3.02	17	2-METHYL-2-BUTENE
23	3-CHLOROPROPENE																				3-CHLOROPROPENE
24	2,2-DIMETHYLBUTANE		0.45		0.75	4.11	2.53	0.75	0.75	2.61	0.71	0.75	4.84	1.08	0.67		4.16	0.68	1.77	14	2,2-DIMETHYLBUTANE
25	2-CHLORO-2-METHYLPROPANE																				2-CHLORO-2-METHYLPROPANE
26	TRANS-1,2-DICHLOROETHENE																				TRANS-1,2-DICHLOROETHENE
27	4-METHYL-1-PENTENE																				4-METHYL-1-PENTENE
28	3-METHYL-1-PENTENE																				3-METHYL-1-PENTENE
29	CYCLOPENTANE	1.05	0.95	1.95	1.64	7.23	4.23	1.32	1.12	4.15	1.18	1.40	8.26	2.10	1.54	1.45	5.31	1.41	2.72	17	CYCLOPENTANE
30	2,3-DIMETHYLBUTANE	1.16	0.96	1.95	1.22	6.04	4.00	1.16	1.26	3.64	1.12	1.29	7.04	1.79	1.25	1.24	6.95	1.50	2.56	17	2,3-DIMETHYLBUTANE
31	2-METHYLPENTANE	6.32	4.39	8.48	6.16	32.33	21.42	6.37	6.44	20.30	5.69	6.40	39.17	7.71	5.30	4.18	35.04	6.70	13.08	17	2-METHYLPENTANE
32	3-METHYLPENTANE	4.37	2.95	5.19	4.22	20.89	14.15	4.26	4.40	13.25	3.82	4.26	25.17	5.80	3.35	3.02	23.80	4.56	8.67	17	3-METHYLPENTANE
33	1-HEXENE					0.99				0.57			0.97						0.84	3	1-HEXENE
34	cis-1,2-DICHLOROETHENE																				cis-1,2-DICHLOROETHENE
35	2-CHLOROBUTANE																				2-CHLOROBUTANE
36	HEXANE	7.05	5.20	7.30	5.93	23.63	16.87	5.82	5.86	14.36	4.88	5.30	26.31	7.47	4.65	4.06	25.51	5.85	10.36	17	HEXANE

GCLONDON_86 DATA ACQUIRED BY MAMU 2

SAMPLE PERIOD DURATION WAS 30 MINUTES OR 60 MINUTES AND SHOULD BE COMPARED
TO STANDARDS(30) OR CRITERIA(60) AS LISTED IN TABLE 6

	SAMPLE PERIOD	1986	1986	1986	1986	1986	1986	1986	1986	1986	1986	1986	1986	1986	1986	1986	1986	1986		
	DURATION/ENDING	DEC 1	DEC 1	DEC 3	DEC 3	DEC 3	DEC 4	DEC 4	DEC 4	DEC 10	DEC 10	DEC 10	DEC 11	DEC 11	DEC 11	DEC 11	DEC 12	DEC 12		
	PERIOD #	30/14:47	60/15:59	60/13:19	30/14:11	30/15:04	30/11:17	30/12:12	60/13:10	60/11:59	60/13:41	60/15:55	30/11:57	30/13:09	30/14:20	30/15:49	30/10:26	30/11:35	AVERAGE	COUNT
		B012	B012	B033	B033	B034	B042	B042	B042	B102	B102	B102	B112	B112	B112	B113	B122	B122		
37	TRICHLOROMETHANE																			TRICHLOROMETHANE
38	TRANS-3-HEXENE					1.13				0.46			0.96						0.85	3 TRANS-3-HEXENE
39	3-CHLORO-2-METHYLPROPENE																			3-CHLORO-2-METHYLPROPENE
40	METHYLCYCLOPENTANE	3.09	2.24	2.18	1.89	6.94	5.39	1.88	2.06	3.97	1.58	1.71	6.85	2.09	1.34	1.35	10.14	2.33	3.35	17 METHYLCYCLOPENTANE
41	1,2-DICHLOROETHANE																			1,2-DICHLOROETHANE
42	1,1,1-TRICHLOROETHANE			1.75						1.74					2.89				2.13	3 1,1,1-TRICHLOROETHANE
43	1-CHLOROBUTANE																			1-CHLOROBUTANE
44	BENZENE **	*	*	14.55	20.57	13.78	12.71	8.37	6.62	5.58	4.55	5.37	7.81	5.29	4.60	4.40	7.67	3.88	7.40	17 BENZENE
45	TETRACHLOROMETHANE					8.20	6.17		3.32	5.48			11.20				9.98		7.39	6 TETRACHLOROMETHANE
46	CYCLOHEXANE		0.60	0.43		0.97	0.85		0.44	1.07	0.45		1.03				1.60		0.83	9 CYCLOHEXANE
47	2-METHYLHEXANE					5.83	4.73	1.96	2.14	3.83	1.77	1.96	6.63	2.35	1.48	1.33	7.99	2.28	3.41	13 2-METHYLHEXANE
48	2,3-DIMETHYLPENTANE	1.16	0.99	1.13	1.14	2.71	2.05	1.05	1.07	1.76	0.94	1.02	2.89	1.13		0.97	3.27	0.97	1.52	16 2,3-DIMETHYLPENTANE
49	CYCLOHEXENE																			CYCLOHEXENE
50	3-METHYLHEXANE	2.32	1.96	2.48	2.27	6.41	5.27	2.23	2.43	4.35	2.06	2.28	7.36	2.71	1.70	1.54	8.60	2.54	3.44	17 3-METHYLHEXANE
51	DIBROMOMETHANE																			1 DIBROMOMETHANE
52	1,2-DICHLOROPROPANE																			1,2-DICHLOROPROPANE
53	2,3-DICHLOROPROPENE																			2,3-DICHLOROPROPENE
54	TRICHLOROETHENE																			TRICHLOROETHENE 1
55	1-HEPTENE		0.53	0.47		1.06	0.98		0.48	0.69			1.06						0.75	7 1-HEPTENE
56	2,2,4-TRIMETHYLPENTANE	1.08	0.99	1.07	1.03	2.00	1.25		0.88	1.23	0.99	1.07	1.24		0.84	1.17	3.71	1.18	1.32	15 2,2,4-TRIMETHYLPENTANE
57	HEPTANE	1.48	1.35	1.97	1.91	4.19	3.69	1.79	1.90	3.16	1.71	1.94	5.22	2.41	1.63	1.34	5.66	2.04	2.55	17 HEPTANE
58	1-CHLORO-3-METHYLBUTANE																			1-CHLORO-3-METHYLBUTANE
59	TRANS-2-HEPTENE																			TRANS-2-HEPTENE
60	METHYLCYCLOHEXANE	1.01	0.96	0.82	0.72	1.57	1.44		0.80	1.04	0.65	0.68	1.50	0.74			2.98	1.02	1.14	14 METHYLCYCLOHEXANE
61	2,5-DIMETHYLHEXANE									0.35							0.57		0.46	2 2,5-DIMETHYLHEXANE
62	4-METHYLCYCLOHEXENE																			4-METHYLCYCLOHEXENE
63	1-CHLOROPENTANE									0.62							1.06		0.84	2 1-CHLOROPENTANE
64	1,1,2-TRICHLOROETHANE									2.36									2.36	1 1,1,2-TRICHLOROETHANE
65	TOLUENE	5.65	5.70	6.34	6.17	8.50	7.27	5.36	5.39	6.90	5.20	5.42	7.62	5.16	4.37	4.62	9.98	4.88	6.16	17 TOLUENE

GCLONDON_86 DATA ACQUIRED BY MAMU 2

SAMPLE PERIOD DURATION WAS 30 MINUTES OR 60 MINUTES AND SHOULD BE COMPARED
TO STANDARDS(30) OR CRITERIA(60) AS LISTED IN TABLE 6

	SAMPLE PERIOD DURATION/ENDING PERIOD #	1986 DEC 1 30/14:47 B012	1986 DEC 1 60/15:59 B012	1986 DEC 3 60/13:19 B033	1986 DEC 3 30/14:11 B033	1986 DEC 3 30/15:04 B034	1986 DEC 4 30/11:17 B042	1986 DEC 4 30/12:12 B042	1986 DEC 4 60/13:10 B042	1986 DEC 10 60/11:59 B102	1986 DEC 10 60/13:41 B102	1986 DEC 10 60/15:55 B102	1986 DEC 11 30/11:57 B112	1986 DEC 11 30/13:09 B112	1986 DEC 11 30/14:20 B112	1986 DEC 11 30/15:49 B113	1986 DEC 12 30/10:26 B122	1986 DEC 12 30/11:35 B122	AVERAGE	COUNT	
66	1,3-DICHLOROPROPANE																				1,3-DICHLOROPROPANE
67	2-METHYLHEPTANE	0.75	0.64	0.92	0.77	1.63	1.71	0.87	0.79	1.33	0.80	0.86	2.32	0.96			1.75	0.80	1.13	15	2-METHYLHEPTANE
68	4-METHYLHEPTANE																				4-METHYLHEPTANE
69	3-METHYLHEPTANE	0.84	0.88	1.14	1.00	1.82	1.67	0.92	0.95	1.50	0.97	1.00	2.19	1.09			1.99	0.80	1.25	15	3-METHYLHEPTANE
70	1,2-DIBROMOETHANE																				1,2-DIBROMOETHANE
71	1-OCTENE																				1-OCTENE
72	TRANS-4-OCTENE																				TRANS-4-OCTENE
73	2-METHYL-1-HEPTENE																				2-METHYL-1-HEPTENE
74	OCTANE	1.05	1.63	2.40	1.21	1.90	1.82	1.09	0.97	1.14	0.95	1.08	1.91	1.27	1.00	0.91	1.90	1.14	1.37	17	OCTANE
75	TRANS12DIMETHYLCYCLOHEXAN	1.15	1.80	2.64	1.33	2.09	1.99	1.20	1.07	1.26	1.05	1.18	2.10	1.39	1.09	1.00	2.08	1.24	1.51	17	TRANS12DIMETHYLCYCLOHEXAN
76	TETRACHLOROETHENE									1.68									1.68	1	TETRACHLOROETHENE
77	2-OCTENE																				2-OCTENE
78	PROPYLCYCLOPENTANE																				PROPYLCYCLOPENTANE
79	CIS12DIMETHYLCYCLOHEXANE																				CIS12DIMETHYLCYCLOHEXANE
80	CHLOROBENZENE																				CHLOROBENZENE
81	ETHYLCYCLOHEXANE																				ETHYLCYCLOHEXANE
82	1-CHLOROHEXANE																				1-CHLOROHEXANE
83	ETHYLBENZENE	1.57	1.59	1.65	1.58	2.03	1.92	1.36	1.38	1.50	1.40	1.53	1.67	1.40	1.19	1.24	2.23	1.28	1.56	17	ETHYLBENZENE
84	M-XYLENE & P-XYLENE	4.88	4.86	4.78	4.81	6.12	5.80	4.03	4.09	4.40	4.09	4.41	4.96	4.17	3.53	3.67	6.42	3.66	4.63	17	M-XYLENE
85	P-XYLENE																				P-XYLENE
86	4-METHYLOCTANE		0.48							0.45		0.42							0.45	3	4-METHYLOCTANE
87	2-METHYLOCTANE		0.47	0.40						0.44		0.41							0.43	4	2-METHYLOCTANE
88	3-METHYLOCTANE																				3-METHYLOCTANE
89	STYRENE		0.41																0.41	1	STYRENE
90	1,4-DICHLOROBUTANE																				1,4-DICHLOROBUTANE
91	1,1,2,2-TETRACHLOROETHANE																				1,1,2,2-TETRACHLOROETHANE
92	O-XYLENE	1.76	1.76	1.73	1.78	2.25	2.05	1.50	1.47	1.62	1.52	1.63	1.80	1.53	1.31	1.34	2.16	1.35	1.68	17	O-XYLENE
93	1-NONENE																				1-NONENE
94	1,2,3-TRICHLOROPROPANE																				1,2,3-TRICHLOROPROPANE

GCLONDON_86 DATA ACQUIRED BY MAMU 2

SAMPLE PERIOD DURATION WAS 30 MINUTES OR 60 MINUTES AND SHOULD BE COMPARED
TO STANDARDS(30) OR CRITERIA(60) AS LISTED IN TABLE 6

	SAMPLE PERIOD	1986	1986	1986	1986	1986	1986	1986	1986	1986	1986	1986	1986	1986	1986	1986	1986	1986		
	DURATION/ENDING	DEC 1	DEC 1	DEC 3	DEC 3	DEC 3	DEC 4	DEC 4	DEC 4	DEC 10	DEC 10	DEC 10	DEC 11	DEC 11	DEC 11	DEC 11	DEC 12	DEC 12		
	PERIOD #	30/14:47	60/15:59	60/13:19	30/14:11	30/15:04	30/11:17	30/12:12	60/13:10	60/11:59	60/13:41	60/15:55	30/11:57	30/13:09	30/14:20	30/15:49	30/10:26	30/11:35	AVERAGE	COUNT
		B012	B012	B033	B033	B034	B042	B042	B042	B102	B102	B102	B112	B112	B112	B113	B122	B122		
95	TRANS-1,4-DICL-2-BUTENE																			
96	NONANE		0.70	0.89					0.68	0.80	0.76	0.72							0.76	6
97	ISOPROPYLBENZENE																			
98	2-CHLOROTOLUENE																			
99	3-CHLOROTOLUENE																			
100	PROPYLBENZENE		0.66	0.64					0.45	0.56	0.58	0.61							0.58	6
101	4-CHLOROTOLUENE																			
102	3-ETHYLTOLUENE	2.40	2.45	1.99	2.13	2.61	2.22	1.80	1.54	1.84	1.87	2.06	2.01	1.79	1.62	1.76	1.85	1.41	1.96	17
103	4-ETHYLTOLUENE		0.78	0.81	0.82	1.21			0.55		0.70								0.81	6
104	1,3,5-TRIMETHYLBENZENE	1.69	1.46					1.45	1.24	1.01	1.45	1.54	1.27				1.52		1.40	9
105	2-ETHYLTOLUENE		0.90	0.83		1.18			1.04	0.72	0.72	0.76							0.88	7
106	1-DECENE																			
107	tert-BUTYLBENZENE																			
108	1,2,4-TRIMETHYLBENZENE	3.57	3.59				3.40	2.51	2.04		2.75	3.04	2.95				2.55		2.93	9
109	1,5-DICHLOROPENTANE																			
110	1,3-DICHLOROBENZENE																			
111	TERTBUTYLCYCLOHEXANE																			
112	(CHLOROMETHYL)BENZENE																			
113	DECANE	1.34	1.00	1.27		1.07				0.80	1.05	1.03	1.45						1.13	8
114	ISOBUTYLBENZENE																			
115	3-(CHLOROMETHYL)HEPTANE																			
116	SEC-BUTYLBENZENE																			
117	1,2,3-TRIMETHYLBENZENE	1.29	1.39	1.35	1.41	1.70	1.29		0.74	0.88	1.08	1.28	1.14						1.23	11
118	1ISOPROPYL4METHYLBENZENE																			
119	1,2-DICHLOROBENZENE																			
120	INDAN		0.50																0.50	1
121	BUTYLCYCLOHEXANE																			
122	1,3-DIETHYLBENZENE																			
123	1,4-DIETHYLBENZENE		1.78																1.78	1

GCLONDON_86 DATA ACQUIRED BY MAMU 2

SAMPLE PERIOD DURATION WAS 30 MINUTES OR 60 MINUTES AND SHOULD BE COMPARED
TO STANDARDS(30) OR CRITERIA(60) AS LISTED IN TABLE 6

	SAMPLE PERIOD	1986 DEC 1	1986 DEC 1	1986 DEC 3	1986 DEC 3	1986 DEC 3	1986 DEC 4	1986 DEC 4	1986 DEC 4	1986 DEC 10	1986 DEC 10	1986 DEC 10	1986 DEC 11	1986 DEC 11	1986 DEC 11	1986 DEC 11	1986 DEC 12	1986 DEC 12			
	DURATION/ENDING	30/14:47	60/15:59	60/13:19	30/14:11	30/15:04	30/11:17	30/12:12	60/13:10	60/11:59	60/13:41	60/15:55	30/11:57	60/13:09	30/14:20	30/15:49	30/10:26	30/11:35	AVERAGE	COUNT	
	PERIOD #	B012	B012	B033	B033	B034	B042	B042	B042	B102	B102	B102	B112	B112	B112	B113	B122	B122			
124	BUTYLBENZENE		1.18	0.93						0.72	0.80	0.89							0.90	5	BUTYLBENZENE
125	1,2-DIETHYLBENZENE																				1,2-DIETHYLBENZENE
126	T-DECALIN																				T-DECALIN
127	UNDECANE		1.47	1.54								1.01	3.50						1.88	4	UNDECANE
128	DECAHYDRONAPHTHALENE																				DECAHYDRONAPHTHALENE
129	C-DECALIN																				C-DECALIN
130	1235-TETRAMETHYLBENZENE		1.07																1.07	1	1235-TETRAMETHYLBENZENE
131	1234-TETRAMETHYLBENZENE																				1234-TETRAMETHYLBENZENE
132	1234-TETRAHYDRONAPTHALENE																				1234-TETRAHYDRONAPTHALENE
133	1,4-DIISOPROPYLBENZENE																				1,4-DIISOPROPYLBENZENE
134	DODECANE																				DODECANE

** FOR BENZENE(044) - PEAKS ON DEC 1 INCLUDED AN UNKNOWN INTERFERENCE

Total Compounds Identified	38	51	37	34	45	40	33	46	56	46	47	46	32	29	28	40	31	40	Total Compounds Identified
Total # of Peaks	51	71	70	46	68	62	41	62	80	62	64	70	43	38	36	62	38	57	Total # of Peaks
Total Hydrocarbons ug/m3	117.56	96.03	148.05	120.49	432.94	271.34	100.66	108.7	265.91	102.8	111.02	430.64	113.59	90.29	87.62	391.12	83.12	180.70	Total Hydrocarbons ug/m3
Alkanes ug/m3	75.83	54.56	99.33	71.1	343.13	199.17	64.69	67.31	203.19	66.9	72.85	341.86	80.11	57.78	64.9	308.74	58.52	131.17	Alkanes ug/m3
Cycloalkanes ug/m3	6.3	6.55	8.02	5.58	18.8	13.9	4.4	5.49	11.49	4.91	4.97	19.74	6.32	3.97	3.8	22.11	6	8.96	Cycloalkanes ug/m3
Alkenes ug/m3	11.86	4.36	2.97	4.54	23.43	14.78	5.19	5.59	13.25	3.9	4.22	22.27	3.42	2.35	1.89	14.85	2.14	8.29	Alkenes ug/m3
Cycloalkenes ug/m3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	Cycloalkenes ug/m3
Alkynes ug/m3	0.56	0.68	0.38	0	0	0.66	0	0.44	0.37	0.38	0.44	0	0	0	0	0	0	0.22	Alkynes ug/m3
Aromatics ug/m3	23.01	30.08	35.6	39.27	39.38	36.66	26.38	26.55	25.73	26.71	28.54	31.23	19.34	16.62	17.03	34.38	16.46	27.82	Aromatics ug/m3
Chlorinated Alkanes ug/m3	0	0	1.75	0	8.2	6.17	0	3.32	10.2	0	0	15.54	4.4	9.57	0	11.04	0	4.13	Chlorinated Alkanes ug/m3
Chlorinated Alkenes ug/m3	0	0	0	0	0	0	0	0	1.68	0	0	0	0	0	0	0	0	0.10	Chlorinated Alkenes ug/m3
Chlorinated Aromatics ug/m3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	Chlorinated Aromatics ug/m3
Benzene:Ethylbenzene	0.00	0.00	8.02	13.02	6.79	6.62	6.15	4.80	3.72	3.25	3.51	4.60	3.78	3.87	3.55	3.44	3.03	4.65	Benzene:Ethylbenzene
Toluene:Ethylbenzene	3.73	3.58	3.84	3.91	4.19	3.79	3.94	3.91	4.60	3.71	3.54	4.56	3.69	3.67	3.73	4.48	3.81	3.92	Toluene:Ethylbenzene
Xylenes:Ethylbenzene	4.23	4.16	3.95	4.17	4.12	4.09	4.07	4.03	4.01	4.01	3.95	4.05	4.07	4.07	4.04	3.85	3.91	4.05	Xylenes:Ethylbenzene